February
1910

MOTOR BOATING · SAILING

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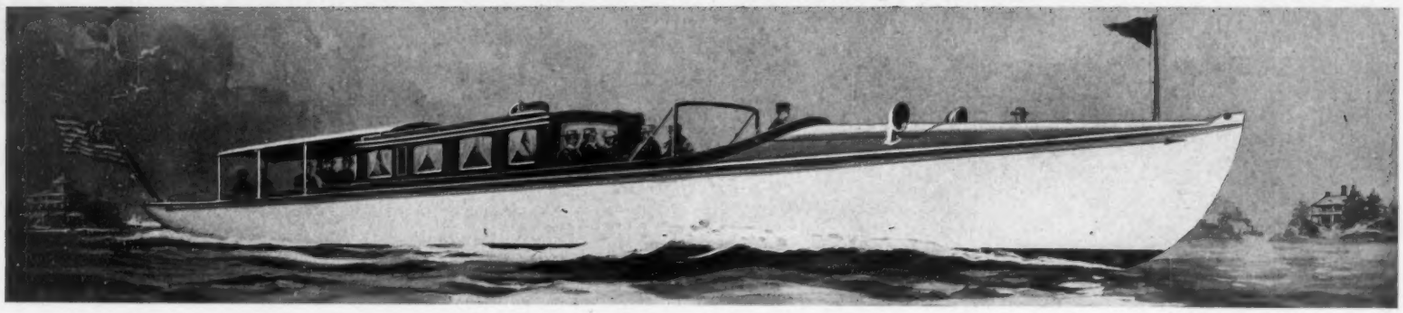
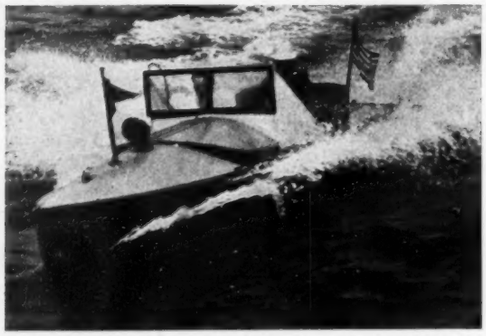
Yachting

New York Motor Boat Show Numb



54-foot Elco-de-Luxe Motor Yacht. 6-cyl., 60-H. P. gasolene motor. Guaranteed speed, 15 miles. Sleeping accommodations for five. Hull of cedar; decks, cabin and interior handsomely finished in mahogany. Specially designed for lakes and rivers where long distances can be covered at fast speed, with maximum comfort in cabin accommodations and seaworthiness.



21-foot Elco Express Yacht Tender. 4-cyl., 40-H. P. gasolene motor. Guaranteed speed, 22 miles. Seating capacity, two to four. Hull finished in mahogany throughout. Hoisting weight, 1,600 lbs. Can be carried on steam yacht's davits. Ideal for high-speed service.

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35-foot Elco Express. 6-cyl., 60-H. P. gasolene motor. Guaranteed speed, 22 miles. Seating capacity, eight to ten. Mahogany hull with mahogany interior finish. Will serve you on water as the automobile does on land.

See our exhibit of all these craft at the NEW YORK SHOW and you will understand why ELCO means the highest development in Power Pleasure Boats

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27 Minutes from New York, Liberty St. or 23d St. Ferry, C. R. R. of N. J.

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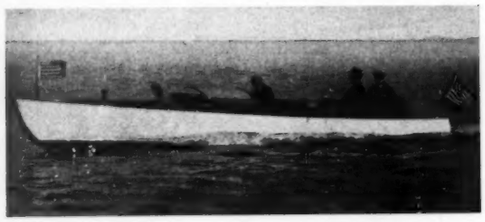
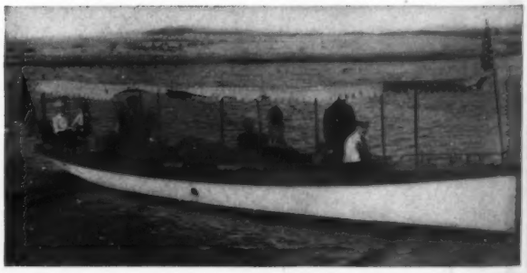
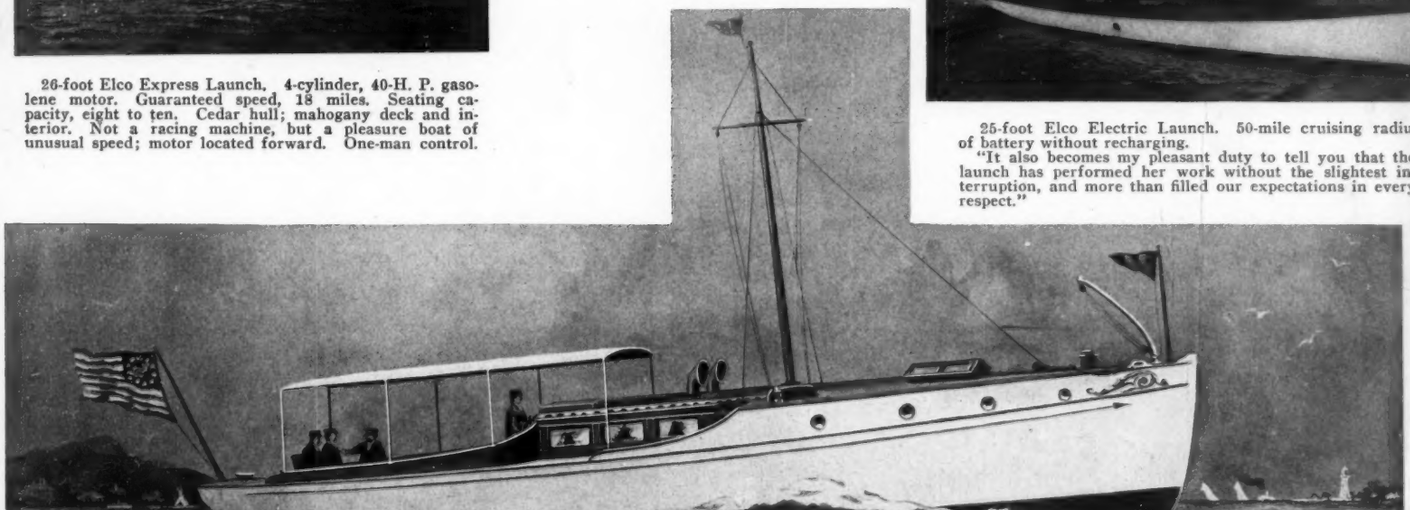


26-foot Elco Express Launch. 4-cylinder, 40-H. P. gasolene motor. Guaranteed speed, 18 miles. Seating capacity, eight to ten. Cedar hull; mahogany deck and interior. Not a racing machine, but a pleasure boat of unusual speed; motor located forward. One-man control.



25-foot Elco Electric Launch. 50-mile cruising radius of battery without recharging.

"It also becomes my pleasant duty to tell you that the launch has performed her work without the slightest interruption, and more than filled our expectations in every respect."



40-foot Elco Gasolene Cruiser. 16-20-H. P. gasolene engine. Speed, 10 miles an hour. Sleeping accommodations for seven. Cedar hull; outside of cabin and cockpit finished in mahogany. Interior of cabin in white enamel and mahogany trim. Deep sea cruiser. Model type of power boat. Best of seaworthy qualities.

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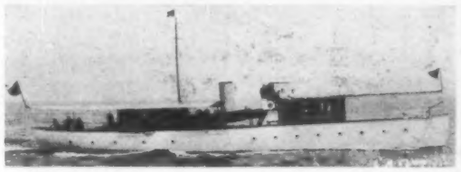
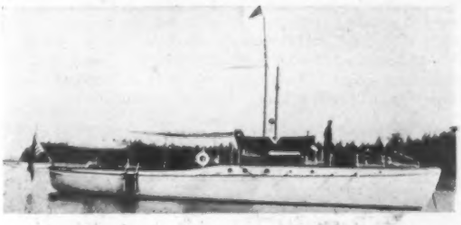
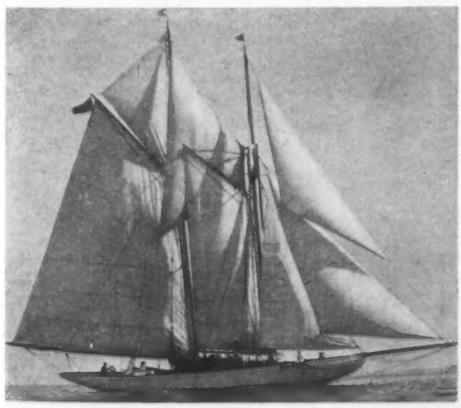
Descriptions and Photos Submitted upon Receipt of Inquiry



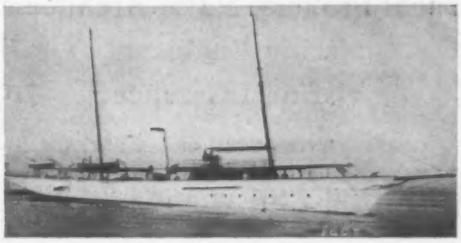
NO. 1427—FOR SALE.—Desirable and roomy steam yacht; 99 ft. over all, 92 ft. waterline, 17 ft. beam, 5 ft. 6 ins. draught; built in 1899. Well kept up; excellent condition throughout. Speed, 10 to 12 knots. Social hall in forward deck house, dining saloon in after one. Below forward main saloon, two double and two single staterooms, bath room, etc. Aft is galley and crew's quarters. Two triple-expansion engines; water-tube boiler, new 1909. Complete electric light plant. Excellent inventory. Has gone through Erie Canal and cruised on Great Lakes, St. Lawrence River and Atlantic Coast, Maine to Virginia. Bargain; owner building larger yacht. Gielow & Orr, 52 Broadway, New York.



NO. 1411—FOR SALE.—Raised-deck cruiser; 55 x 11.6 x 3.6 ft. Attractive, able craft. Double stateroom, large saloon, two toilets, etc.; 25 H. P. Standard motor; speed, 11 knots. Independent electric light plant. Fully found for cruising. All joiner work of selected mahogany; interior trimmed in white enamel. Launch, dinghy, etc. Price attractive. Apply to Gielow & Orr, 52 Broadway, New York.



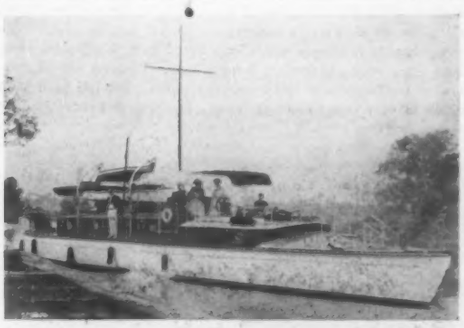
NO. 1398—FOR SALE—65 ft. Lawley keel auxiliary schooner yacht. Outside lead ballast. Flush deck and cockpit. Interior finish mahogany and white. Double and single stateroom, saloon, two toilets. 25 H.P. motor; speed 5 knots. Fast and excellent seaboat. First class shape. Price attractive. Apply to Gielow & Orr, 52 Broadway, New York.



NO. 1935—SACRIFICE.—173 ft. steel steam yacht. Speed up to 17 knots. Five staterooms, three baths, large main and dining saloons. Exceptional deck room. Owner has larger steam yacht. Details, plans, etc., from Gielow & Orr, 52 Broadway, New York.

NO. 1365—Fast twin-screw cruiser of hunting cabin type; 62x 12x4.6 ft. Speed 12 to 14 miles. Two 4-cylinder Craig engines, developing 60 H. P. Finish of mahogany. Saloon, toilet, galley, etc. Best construction. Bargain. Apply to Gielow & Orr 52 Broadway, New York.

NO. 1380—BARGAIN—Twin screw gasoline cruiser; 71x12x3.3 ft. Built 1906 from my designs. Two double staterooms, two toilets; electric lights. Two 25 H. P. Standard engines; speed 12 to 13 miles. Unusually good seaboat, with excellent light and ventilation. Owner has larger boat. Plans, etc. from Gielow & Orr, 52 Broadway, New York.



NO. 2080—FOR SALE—Attractive cruising power yacht; 75x14 x4 ft. Speed 12 to 16 miles; 6 cylinder Standard motor. Very seaworthy. Two staterooms aft with double beds, bathroom, two toilets, galley amidships, main saloon, etc. Electric lights, hot water heating plant; full cruising outfit, including 18 ft. speed launch and dinghy. Price low. Gielow & Orr, 52 Broadway, New York.

FOR SALE OR CHARTER—No. 389.—Fast Herreshoff, mahogany planked, flush-deck steam yacht; 138 x 116 x 14.1 x 6 ft. 6 in. draught. Quadruple-expansion engine and water-tube boiler. Three staterooms, bath, large main saloon, social hall, and pilot house. Interior handsomely finished in mahogany. Sleeps good-sized party. Galley, officers' staterooms and crew's forecastle are forward. Anchors, chains, awnings, small boat and interior equipment. Considerable new 1909. Yacht is now located on St. Lawrence River and has cruised extensively on the Atlantic coast. Owned by estate and will be sold at low figure. Gielow & Orr, 52 Broadway, New York.

NO. 946—FOR SALE.—Roomy twin-screw power houseboat; 70 x 22.3 x 2.6 ft. Four double staterooms, two toilets, large saloon, galley, etc. Two 4-cyl. 4-cycle Lamb engines; speed, 8 miles. Acetylene lights. Large deck space. Comfortable, seaworthy cruiser. Owner will accept less than half cost for quick sale. Details from Gielow & Orr, 52 Broadway, New York.

NO. 2732.—Centreboard auxiliary sloop, 31 ft. o. a., 27.6 ft. w. l., 9.6 ft. beam, 2.7 ft. draft. Two berths in cabin, toilet, etc. 7 H. P. Palmer motor; speed 6 to 7 miles. Very heavily and strongly constructed boat in very good shape. Bargain, as owner is building large power boat from my designs. Gielow & Orr, 52 Broadway, New York.

NO. 1970—FOR SALE—Twin screw cruising power yacht 91x15x4.2 ft. Built 1907. Able, roomy cruiser. Four staterooms, bath, two toilets, deck dining saloon and library, etc. Two 60 H. P. Standard engines gives speed of 12 to 13 knots. Completely found, including 16 foot launch and dinghy. Electric lights (independent engine). Full particulars from Gielow & Orr 52 Broadway, New York.

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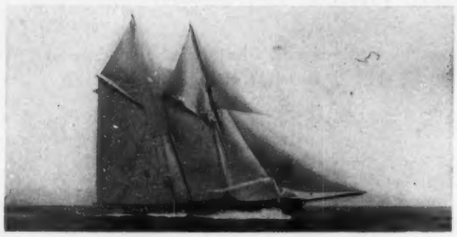

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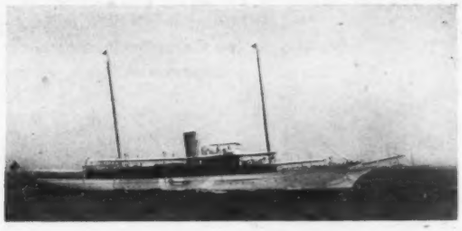

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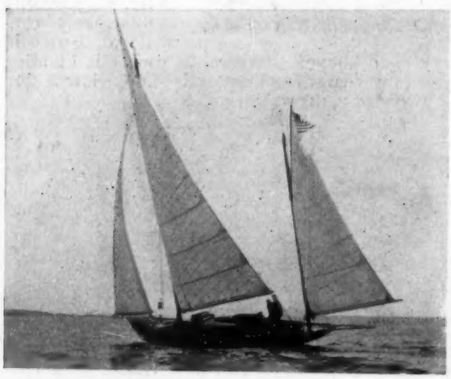
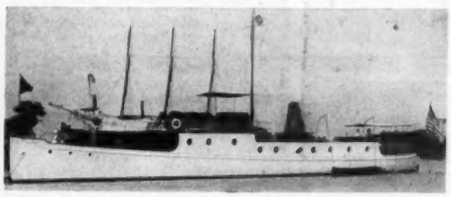
NO. 2522—FOR SALE.—Reasonable price racing sloop "Juanita," 34 x 22 x 7.6 x 5.6 ft. able, fast, perfectly balanced. Ideal boat for afternoon sailing or racing. Small trunk cabin, sleeps two comfortably. Finished at top of Handicap Class two consecutive seasons. 1908 greatest number of firsts. 1909 greatest number of points—altogether 46 starts, 30 places. Owner wants larger boat.

NO. 7392—Fast twin-screw cruiser of hunting cabin type; 62 x 12 x 4.6 ft. Speed 12 to 14 miles. Two 4-cyl. Craig engines, developing 60 H. P. Finish of mahogany. Saloon, toilet, galley, etc. Best construction. Bargain.

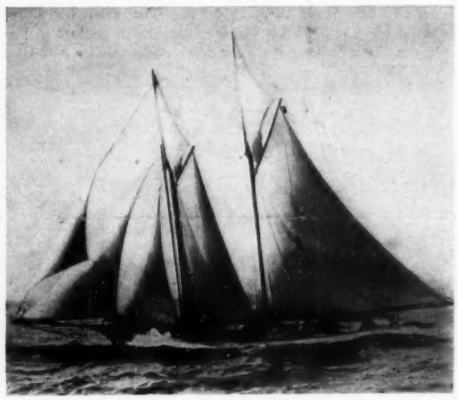


NO. 3095—For sale. Able Lawley cruising auxiliary yawl. In good condition. Has cruised up the Maine coast. 5 H. P. motor, 37.9 x 25 x 9 x 5.6 ft., 6,000 pounds lead ballast. Can sleep six. Toilet room and galley. Very complete outfit. Owner anxious to sell. 5.11 ft. headroom. Large cockpit.

FOR SALE OR CHARTER



NO. 7273—FOR SALE.—At a bargain as owner wishes to purchase larger boat. 86 x 82.5 x 12 x 4.4 ft. 75 H. P. motor Two staterooms, bathroom, dining saloon and sitting room. Unusual sea boat. Perfect condition.



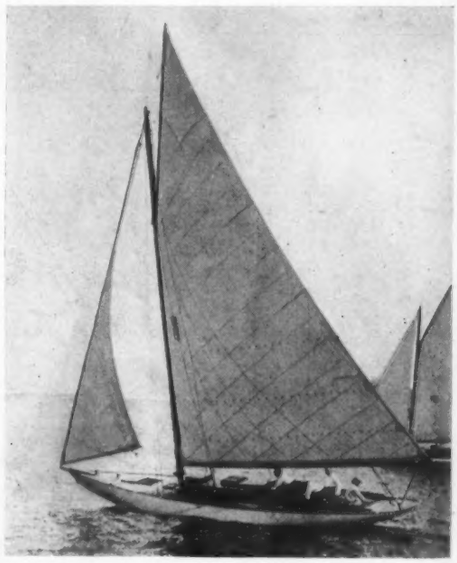
NO. 1039—FOR SALE.—Steel flush deck auxiliary schooner, 98 x 80 x 21 x 11 ft. Best condition. Completely overhauled this spring; having new white pine deck, running and standing rirging; 60 H. P. Remington oil motor installed 1909 under Messrs. Cary, Smith & Ferris's supervision, safest possible installation. Craig bronze feathering propeller. Speed over 9 miles an hour. Five staterooms, bathroom, large saloon. Unusual opportunity. Owner would consider any reasonable offers. For full particulars apply to your own broker or Tams, Lemoine & Crane, 52 Pine Street.

NO. 7870—FOR SALE.—At a very reasonable figure, this runabout, 32.2 x 6 x 2.5 ft. Construction of the best. Will seat ten to twelve people. Has a specially built 20 H. P. motor, speed 16 miles. Mahogany finish. Complete equipment. A handsome boat in good condition. Can be purchased at a bargain figure.

FOR SALE OR CHARTER

NO. 1808—FOR SALE.—Power houseboat. Perfect condition. 12.3 x 115 x 17.8 x 3.6 ft. Built 1901. Five staterooms, two baths, large saloon. Twin screw, two 75 H. P. Standard motors Electric light. Speed 9 knots. Unusual opportunity.

NO. 7095.—35 x 5.3 x 30 ins. Built 1909. 50 H. P. Peerless, 22 miles. Owner having larger boat built and is anxious to sell Will sacrifice. Is in perfect condition.



NO. 3122—For sale at reasonable figure. New York Yacht Club. 30 ft. class. 43.6 x 30.1 x 8.10 x 6.3 ft. Designed and built by Herreshoff. Fast and able. Finished in mahogany Sleeps six. Has galley and toilet. Good condition, new sails.

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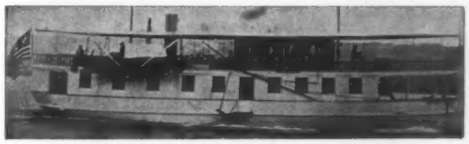
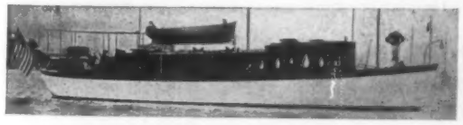
NO. 459.—Twin screw gasoline motor yacht, 91 x 82 x 15 x 5 ft. draught, launched 1907; equipped with two 50 H. P. Standards; two double, two single staterooms; one bath room, two toilet rooms; sleeps eight comfortably.

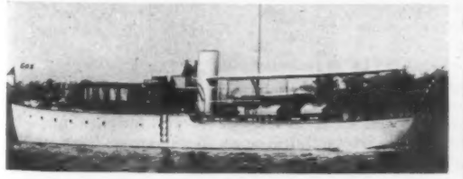
NO. 401.—Raised deck twin screw power launch, 64 x 58 x 12 x 3.6 ft.; launched 1907. One double stateroom, four berths in saloon, galley, toilet room, etc. Has two 20 H. P. Twentieth Century engines. Speed, 12 miles. Condition perfect; completely found; excellent seaboat.



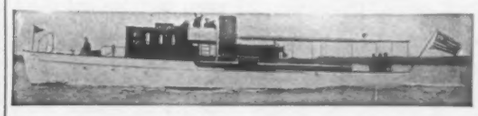
NO. 367.—Desirable twin screw gasoline power houseboat, 85 ft. over all; has liberal accommodations and fitted out in best possible taste. Supplied with all conveniences.



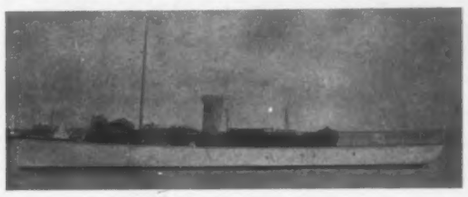
NO. 548.—Desirable gasoline launch, 50 x 49 x 11 x 3 ft. draught, beautifully finished and fitted. Excellent proposition for cruising or day service. 25 H. P. Murray & Tregurtha engine. Saloon forward, four berths. Engine room and crew's quarters aft. Roomy flush deck aft. Price attractive.



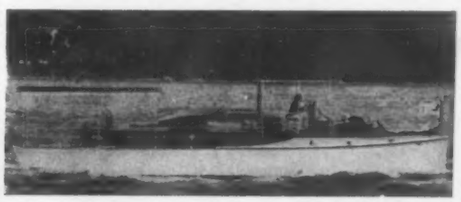
NO. 603.—Twin screw gasoline cruising yacht, 83 x 76 x 14.3 x 4 ft. draught; launched 1909; beautifully finished, fitted and furnished; two double saterooms, saloon, bath and other conveniences; two 60 H. P. Standard engines.



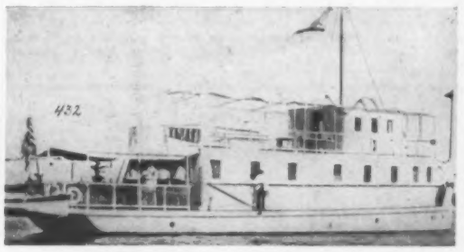
NO. 464.—Cruising motor yacht, Lawley design and build, 81 x 73 x 13 x 4 ft. draught; launched 1907; speed, 15 miles; two double, two single staterooms; two berths in saloon; sleeps nine; equipped with 100 H. P. Standard, self-starting. Price attractive.



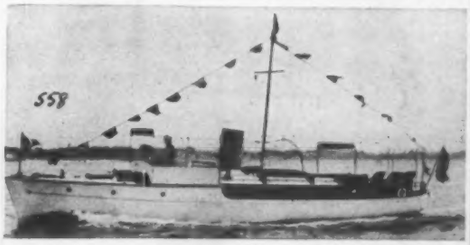
NO. 460.—Gasoline cruising launch, 71 x 65 x 10 x 4 ft. draught. Built 1906 by Lawley. Equipped with 100 H. P. Standard engine; speed, 14 knots. Accommodations consist of double stateroom and large toilet room aft, forward is dining saloon, toilet room, galley, etc. Electric lights, etc.; completely found. Price attractive.



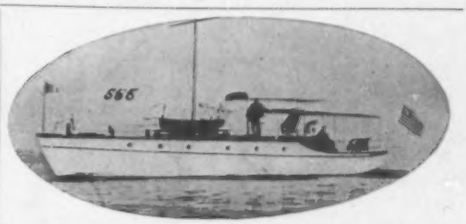
NO. 605.—Raised deck cruising launch, 50 x 47 x 10.6 x 3 ft. draught; launched 1909. Price attractive.



NO. 432.—Twin screw gasoline power houseboat, 75 x 20 x 30 ins. draught. Six staterooms, saloons bath room, etc. Roomiest craft of her size. All conveniences, fully found. Standard engines.



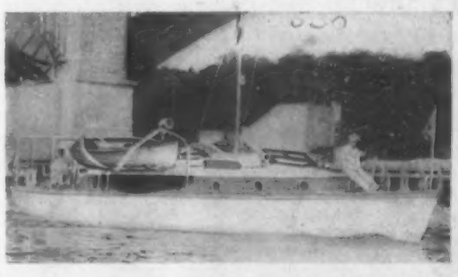
NO. 558.—Exceedingly attractive raised deck cruiser; 52 ft. over all; 10 ft. beam; 3 ft. draught; one stateroom; four berths in saloon; all conveniences; 30 H. P. engine; speed, 12 miles normal.



RAISED deck cruiser at bargain, built 1908, 55 x 12 x 3.6, 25 H. P. motor. Large saloon, owner's room double, well finished and furnished; will sleep six. Now in commission.

NO. 1000.—Raised deck cruiser, 58 x 12 x 4 ft.; built 1909; 6-cylinder Standard engine. Winner of this year's race to Bermuda; commodious and well built.

NO. 96(*b*).—Desirable cruising power houseboat. 61 x 54 x 16.2 x 3 ft. draught. Recent design and build; one double, two single staterooms; saloon with two berths; sleeps eight; 25 H. P. Standard engine. Price attractive.



NO. 530.—Hunting cabin cruising launch, 49 x 47 x 9 x 3 ft. draught, launched 1906; sleeps four; equipped with 60 H. P. motor.

NO. 609.—Cruising launch, 40 x 35 x 8 x 2.9 ft, launched 1909. Price attractive.

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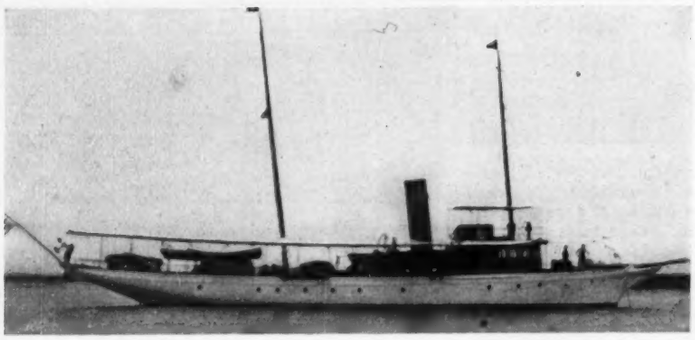
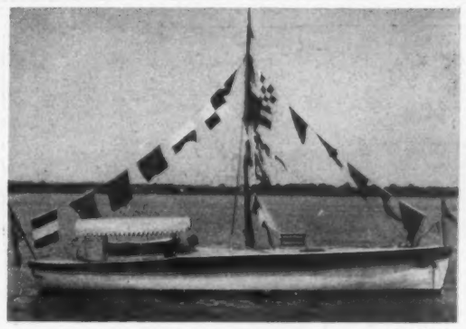
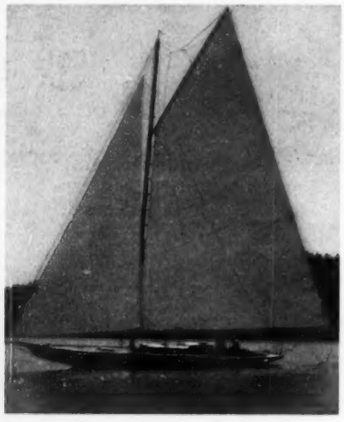


NO. 3464.—Modern steel steam yacht, built by the Seabury Company, 1904; has had very little use; condition good as new; recently passed Lloyd's survey. The accommodations, all aft, include 3 double staterooms, saloon and bath; finished in polished mahogany throughout. Commodious dining saloon on deck. Excellent bridge. Dimensions are 120 ft. over all, 95-ft. water line, 16½ ft. beam and 7½ ft. draft; engine, triple expansion; speed is 12 to 13 knots. Yacht is electric lighted and steam heated throughout, and has every modern convenience and improvement. She is generally considered the best yacht of her size and type. Owner's reason for selling is that he has built a larger yacht. Further particulars, plans, etc., on file with Frank Bowne Jones, Yacht Agent, 29 Broadway, New York.



NO. 4895.—Raised deck Cruiser; dimensions, 42½ ft. by 9 ft. by 3½ ft.; designed by Wm. H. Hand and built last season; 18/23 H. P. Standard engine; double stateroom and saloon; now in Florida waters. Frank Bowne Jones, Yacht Agent, 29 Broadway, New York.

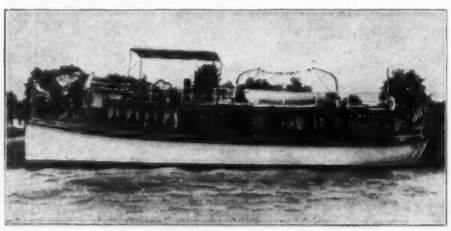


NO. 3077.—Racing and cruising centerboard Sloop; dimensions, 40 ft. 6 in. over all, 28 ft. 4 in. water line, 9 ft. 3 in. beam and 4 ft. 6 in. draft; built by the Herreshoffs in 1902; double planked mahogany; all lead outside ballast; centerboard in keel; 5 ft. 6 in. headroom in cabin. Probably the fastest boat of her dimensions. Frank Bowne Jones, Yacht Agent, 29 Broadway, New York.

NO. 1635.—Raceabout; dimensions, 34 ft. 3 in. by 21 ft. by 9 ft. 3 in. by 3 ft. 6 in.; designed by B. B. Crowninshield; 3,100 lbs. outside lead; centerboard in keel. Has a splendid record for speed and is a good sea boat. Condition A1. Frank Bowne Jones, Yacht Agent, 29 Broadway, New York.

NO. 911.—Auxiliary Yawl; dimensions, 40 ft. over all, 33 ft. water line, 13 ft. beam and 3½ ft. draft; built by Wilton Crosby in 1902; 6 ft. 3 in. headroom in cabin; 3 good berths; new sails; Buffalo motor installed 1905. A particularly comfortable and able boat. Frank Bowne Jones, Yacht Agent, 29 Broadway, New York.

WANTED—30-ft. waterline yawl. Draught not over 5 ft. Rigging and hull must be in good condition. Condition of sails and outfit immaterial. Describe and state price of yawl. P. O. Box, 1592, New York City.



FOR SALE—Motor yacht "Florida," 50 x 12 x 3. Nearly new. Hull and machinery in the pink of condition. Splendidly equipped for cruising. Berths for nine. Bathroom, electric lights, power tender, dinghey. Copper-fastened salt-water fittings throughout. Fine sea boat. R. D. Palmer, 366 Mount Vernon Avenue, Columbus Ohio

NO. 294—FOR SALE.—Keel knockabout, 31 x 19 x 7 x 5 ft., Boardman design, Fenton build 1906. New hollow mast 1909. Sails, etc., first-class condition; watertight cockpit. Sister boat to champion in class. Price very low. Apply John G. Alden, 27 Kilby Street, Boston,

NO. 2836. For Sale. First-class keel auxiliary yawl; 52 ft, o. a., 33 ft. w. l., 10 ft. beam, 7 ft, draught. Built 1905. Located on the Great Lakes. Excellent seaboat; finished throughout in mahogany. Large saloon, accomodates 8 to 10. Sails mostly new last season. Equipped with 25 h. p. motor, installed 1908, giving speed of 8 miles. Inventory includes awning, cushions, carpets, furnishings, flags, etc. This yacht stands her owner in over $8,000, but can be had at very low figures as he is building large power boat. For further particulars apply to Gielow & Orr, 52 Broadway, N. Y.

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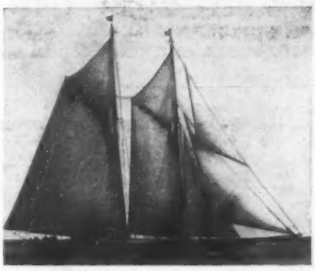

NO. 10892—FOR SALE—Steel seagoing cruiser, 78-ft. waterline, 21-ft. beam. Built 1902 at cost of $65,000. Three staterooms, bath; 75 H. P. Standard engine new 1907. Marconi wireless telegraph. Magnificent complete equipment. Very low price. Apply to Stanley M. Seaman, 220 Broadway, New York.

SACRIFICE—No 2806—Half cabin launch, 45x7 ft., suitable for passenger service. Speed 12 to 14 miles; 25 H. P. Fairbanks engine, new last season. Hull entirely rebuilt, from keelson to deck. Good equipment. Details from Gielow & Orr, 52 Broadway, New York.

FOR SALE—Double-end Ketch 24.5x20x9x4.5. Built by Beetle, New Bedford. Keel boat with outside and inside ballast. Good inventory. Flush deck with 5-ft. 4-in. headroom under large skylight. Self-bailing cock-pit. New sails. In commission. Price $475. Address H. C. Robinson, 3 Alpha Place, New Rochelle, New York.

NO. 5762—FOR CHARTER.—Seagoing gasolene cruiser built 1907. 97 ft. over all, 17 ft. beam, 3 ft. 11 ins. draught. Very heavily constructed for sea work. Two double, two single staterooms, saloon 15 x 18 ft. all mahogany; bathroom with shower; two crew staterooms. 7 ft. headroom throughout; all windows screened. Large upper deck. Two 50 H. P. Standards. Speed, 10-12 miles. Built particularly for Southern cruising; has covered 40,000 miles past three years, including Great Lakes, Mississippi River, Gulf of Mexico, Cuba, Atlantic Coast, Florida to Maine. Her owner being on a round-the-world trip until June, 1910, offers her for charter in the meantime. Ready for immediate service, Florida.. Address Stanley M. Seaman, 220 Broadway, New York City.

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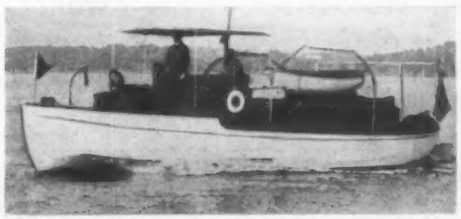
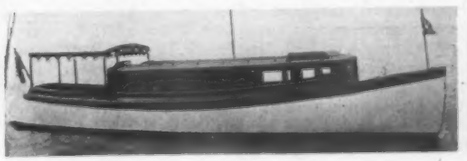
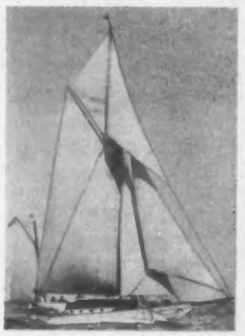


NO. 6044—FOR SALE.—Single-handed gasolene cruiser, built 1909; 44 over all, 9.8 beam, 3.6 draft. Exceptionally fine sea boat; 4 separate berths; 18 Standard engine; electric lights. Latest development of design. Low price. Address Stanley M. Seaman, 220 Broadway, New York.

WANTED—Keel auxiliary yawl, 35 to 45 ft. on deck. Must have headroom, w.c. and be well found. Send photo, description, inventory and low price to Stuart S. Scott, 803 East 22d St., Baltimore, Md. Photos returned.

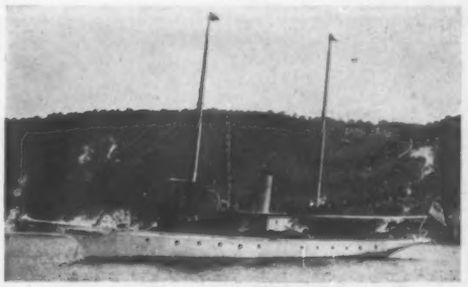


NO. 5891—FOR SALE.—Cruising Launch, built 1909, in very substantial manner throughout. 38 over all, 8 beam, 2.6 draft. Oblong windows in trunk afford excellent light and ventilation. Cabin, with two transoms, provides comfortable berths; toilet; galley; engine room with berth for man. Mahogany interior; head-room, 6 feet 9 inches; 30 H. P. four-cycle Regal engine, new 1909; speed, 10 to 12 miles an hour. Have hardly used her, and am anxious to sell; price low. Address my agent, Stanley M. Seaman, 220 Broadway, New York.



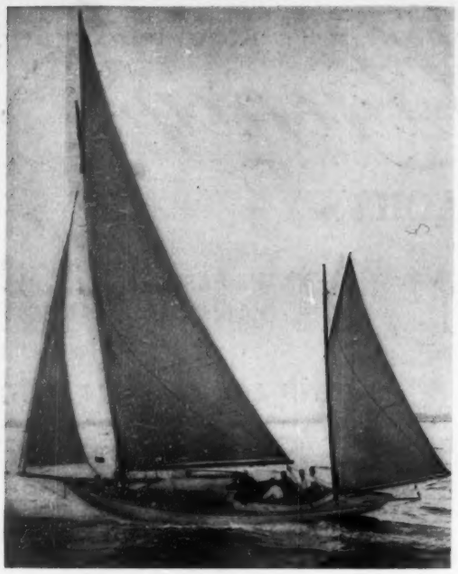
NO. 10,893—FOR SALE.—Seagoing 40-foot keel auxiliary yawl, built 1903. Finest craft of character available; cost $14,000; 2 staterooms; saloon; Standard engine; 3 tenders. Complete cruising outfit. Beautifully constructed throughout. Owner wants to sell. Further details from Stanley M. Seaman, 220 Broadway, New York.

FOR SALE—Well built family motor boat. Length 26 ft. Beam 6 ft. Draws 2 ft. 3 in. water. Six H. P. engine, 6 Edison batteries, magneto. Summer top, awnings, cushions, complete equipment. Will sell at great reduction as owner cannot use it this season. Arthur C. Wheeler, 6 Arch St., Norwalk, Conn



NO. 6052—FOR SALE.—Steel coast cruiser, 130 feet long. Practically new; 4 staterooms; 2 deck saloons; speed, 12-15 miles; 5 tenders. Grand opportunity to purchase. Address Stanley M. Seaman, 220 Broadway, New York.

NO. 5967—81 feet. Very commodious accommodations. Two staterooms; two saloons; bath; electric lights; 100 H. P. Standard; speed, 13 miles. Low price. Stanley M. Seaman, 220 Broadway, New York.

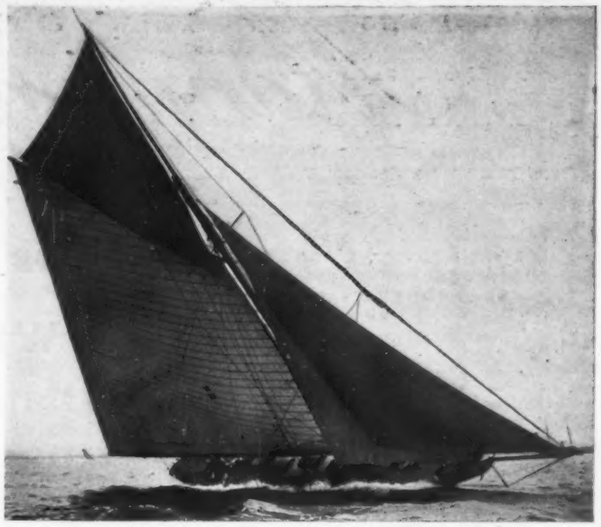


NO. 3135—FOR SALE.—Handsome keel yawl, 46 x 30 x 12 x 6 feet 5 inches draft; Cary Smith design; 9 tons lead. Winner many races; rates Q class present rules. Completely inventoried; launch; toilet; able off-shore cruiser. Particulars, William Kiggins, 45 Broadway, New York.

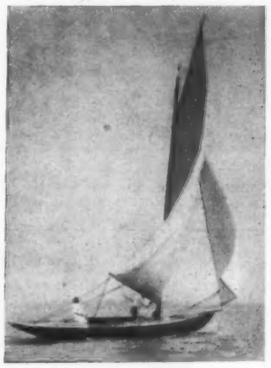
WANTED Yawl, 36 to 46 feet over all, 12 to 13 feet beam. Draft, 5 feet or less. Full head room. Hull and rigging must be in good condition. Describe, and state price. P. O. Box 1592, New York City.

FOR SALE—Fast racing and cruising sloop. Length, 60 feet 2 inches. Waterline, 36 feet; beam, 12 feet; draught, 9 feet. Two suits of sails, some new this year, standing and running rigging first-class condition. Cabin, 6 feet headroom; two toilets, one stateroom. Can be seen near New York.

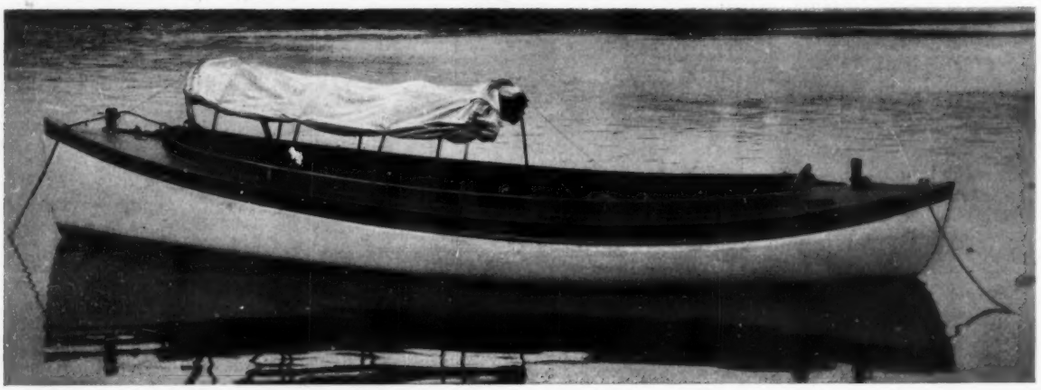
Dorwina, care of Yachting Publishing Company, 20 Vesey Street, New York.



WANTED — An auxiliary cruising sloop or yawl, 30 feet over all, not more than 4 feet draught. Must have good cabin accommodation and be in first class condition. E. W. Miller, 8721 Twenty-third Avenue, Bensonhurst, Brooklyn, N. Y.



FOR SALE — No. 10659, Class "Q," 37 ft. 4 in. o.a., 25 ft. w.l., 8 ft. beam, 5 ft. 6 in. draught. Mower design, built 1905 by Huntington Mfg. Co. A-1construction. Copper fastened throughout. Mahogany companionway slide, rails and cockpit. Lead keel —4,000 lbs. Two suits sails, one by Ratsey; Pigeon hollow spars; dinghy. An excellent type of craft, very fast and able. Champion of class 1905, Gravesend Bay, Y. R. A., also won Larchmont Y. C. series same year. Raced with marked success ever since. Boat in first-class condition. Will be sold reasonable. Inspectable Lake Erie. Address Stanley M. Seaman, 220 Broadway, New York.



FOR SALE.—Compromise stern, open launch, 26 ft. 6 ins. over all; 6 ft. 4 ins. beam, 26 ins. draught at skeg. 2-cylinder, 2-cycle, 8 to 9 H. P. Monarch engine; 22-gallon gasoline tank; Gies reverse gear, bronze shaft and 3-bladed propeller. Makes 9½ miles. This boat was illustrated and described on pages 113 and 114 of August Yachting. She was built under the owner's supervision and launched June, 1909. Divided by bulkhead into forward and after cockpits. Forward cockpit 10 ft., after cockpit 8 ft. long. 10-ft., 10-oz. Commodore spray-hood covers forward cockpit and has rear curtains converting it into a summer cabin. Samson posts forward and aft stepped in keel. Water-cooled muffler under after deck. Cockpit free from exhaust piping and electric wiring. Very seaworthy and able and the best combination of summer cabin and open boat. Has forward steering wheel and after steering lever allowing one man to handle engine controls, reverse gear and steering. Equipment consists of Seaman patent auto chain steerer, 6-cell Stanley & Patterson wireless battery holder, two dash type jump spark coils with switch on box, sailing and anchor lights, fog horn, 8-in. bell, boat hook, trouble lamp, ammeter, voltmeter. Shebler carbureter, 26-lb. folding Dirigo anchor, 100 ft. cable, two 25-ft. mooring lines, four 15-in. fenders, chamois straining funnel, power bilge pump, gasoline strainer and water separator, six life preservers. Linoleum on after cockpit floor. 10-oz. Khaki cockpit cover. Three people can sleep in forward cockpit under spray hood. After cockpit has lazy back stern seat and plenty of room for four chairs. 5 ft. 7 ins. standing room under forward end of sprayhood. At an expenditure, not exceeding $50.00, trunk could be built over the forward cockpit converting her into a trunk cabin cruiser. She is undoubledly the best all around moderate priced open boat built last season and the owner's only reason for selling her is that he intends building a larger cabin cruiser. Address Bargain, care P. O. Box 1592, New York City.

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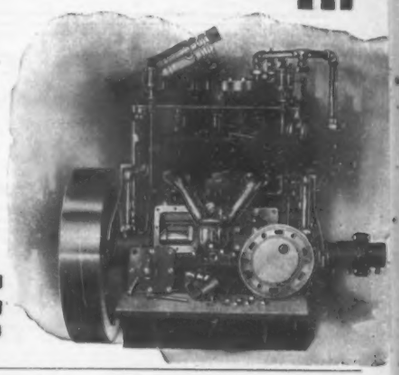

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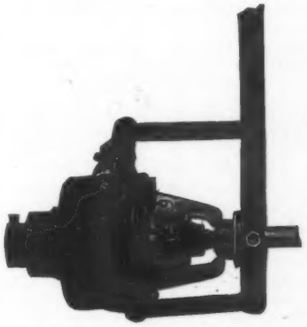

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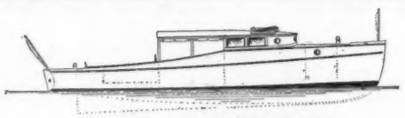

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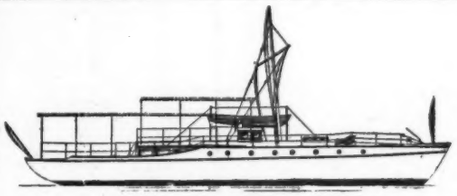

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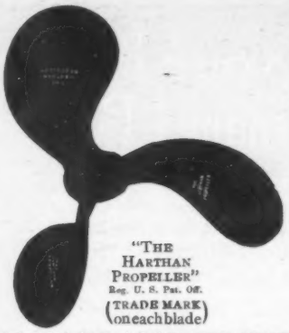

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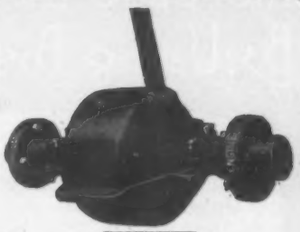

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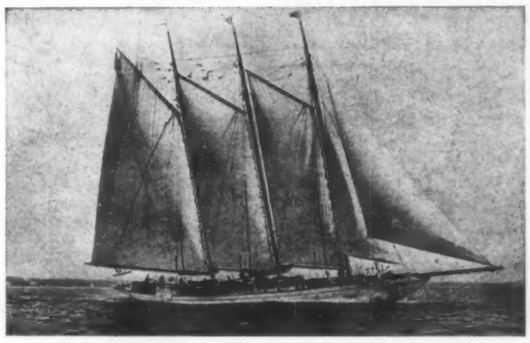

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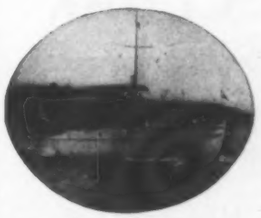

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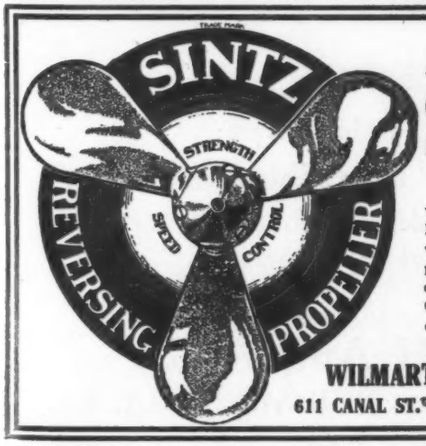

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are designed and made by the Rushton people, and have kept first place for so many years because in no other canoe are so perfectly combined the features of

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There are three essentials to consider in the choice of paint for the bottom of your boat. Speed—Durability—Upkeep.

The Bridgeport Standard (Mitchell's) Non-Fouling Enamel Paint possesses these essentials to a greater degree than any other paint made.

It produces a smooth, even, glossy surface which allows the boat to slip through the water with the least possible resistance.

It is an elastic paint which stands jolts and jars, bumps and knocks without chipping or peeling.

Its smooth, glossy surface absolutely prevents fouling. and it is non-absorbent and cannot soak off or quickly wear off like many other bottom paints.

When applied on iron keels or fastenings, it does not injure them as most other paints do, for, as you know, bronze and copper paints destroy iron by electrolysis.

Builders of boats, whose business it is to know the best boat paints, use Bridgeport Standard (Mitchell's) Non-Fouling Enamel Paint in preference to all other sorts.

It lasts longer than any other paint. It will stand a season's hard service, and be in perfect condition when the boat is hauled out or dry-docked.

It was used last season on such successful boats as Windward, Dorello, Gardenia, Princess, Joyette, Ellen, Wolf and Hevella.

We have hundreds of letters from users of this paint, commending it above all other sorts. If you could read a part of them—you would know that you cannot afford to use any other paint for your boat bottom.

If you want to know more about Bridgeport Standard (Mitchell's) Non-Fouling Enamel Paints,

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The BRIDGEPORT WOOD FINISHING Co.
NEW MILFORD, CONN.
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WHITE BOAT CEDAR

IN ALL THICKNESSES AND LENGTHS

in stock for immediate shipment to any part of the country.

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do not delay in signing one for another year. The biggest numbers of the year are now at hand; you do not want to miss them. The **"Boat For Sale"** Number, with all the best offerings in motor and sail boats, is the next issue. April is the Spring **"Fitting Out"** Number, and July the big **"Cruising"** Number. Renew now, so as not to miss an issue.

To everyone subscribing during the month of February, whether he is renewing or is a new subscriber, we will send Free one of our Marine Art Prints, frequently advertised in these pages. We have never sold these prints for less than $1.50, and they should be seen to be fully appreciated.

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Insure your yacht under our liberal form of marine policy, which covers:

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This policy is issued at reasonable rates. Do not lay up your yacht without insuring same. Fittings separately housed ashore covered under this policy without extra charge.

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THIRD AND WALNUT STREETS - - - - PHILADELPHIA, PA.

GENTLEMEN–WE ACCEPT YOUR CHALLENGE

TO THE PUBLIC:—IN JUSTICE TO OURSELVES, AS WELL AS OUR CUSTOMERS WE HAVE ACCEPTED A CHALLENGE WHICH MEANS MUCH TO YOU

The General Machinery Co., makers of the Smalley engine, have issued a challenge to this effect:

That they "can drive *any* boat, *any* distance, *faster* with the Smalley engine than the same hull can be driven by *any other engine* of equal size. Also that no *engine* of the same, or approximately the same size can *equal* the brake horse power test that can be made by the Smalley, and are ready at all times or place to demonstrate either of these statements."

Business etiquette, and a certain sense of modesty has prompted us, up to the present time, to refrain from accepting this challenge. Now the DIRECTORS of this corporation have instructed the management to respond both to this defi and to the urgent and repeated requests of our many friends and patrons whose faith in the "SYRACUSE" is so well established and deservingly so, to do what **no other manufacturer has dared to do.**

OUR SINCERITY

Accordingly, we have deposited with The City Bank, at Syracuse, N. Y., the sum of **$500**—same to be covered by the General Machinery Co. by an equal amount on or before Feb. 25th, 1910—and that the total amount of **$1,000** be awarded to the winner of a race to be held on Onondaga Lake, N. Y., during the month of August, 1910.

This wager on our part is to strengthen our statements before the public, prove our good faith, and show by this as no other method can, that we *mean business* and are sincere. The element of what is termed "BLUFF" is not a composite of our make-up, and unless such an amount is put up it would be an easy matter to "Crawfish." In plain English we have on deposit this amount of $500 for the sole purpose of our own defense. It would be the height of folly, unfair to our customers and unjust to ourselves, to permit this challenge to remain unanswered any longer, without sacrificing to a degree the high standing we enjoy with the Motor Public, and since *no other* MANUFACTURER has the nerve to accept—WE DO. The terms and conditions are in all fairness to both and are stated below only with that intention.

TERMS AND CONDITIONS

We will furnish a hull, suitable for a Six (6) cylinder, 5½ x 5½" bore, and stroke and they are to install their engine of this size in this hull and run over a measured course of *one hundred miles* and the time taken by three judges. After this trial by them the hull is to be turned over to us at once with the "Smalley" engine taken out and we will install our "SYRACUSE" of the same size, within one week and run over the same course. If we fail to equal the time made by them we forfeit the $500. On the other hand should we make the run in the same time or better, they are to forfeit their deposit of $500 to us. Or, we will agree to *equal* or *better* the BRAKE HORSE POWER TEST of this same engine as indicated above, of same size Six (6) cylinder, 5½ x 5½', on our test stand, for the same stake.

JUDGES

In both cases a committee selected from the local Chamber of Commerce or University, to act as judges and their decision to be final. If the Brake Test is preferred the Maximum test shall be that which is affected within 60 minutes of first trial. In other words, the time limit of each competitor is to be ONE HOUR. We have no preference, as we accept BOTH of their challenges and gladly submit to their decision as to either trial and test.

It is further understood that the measurements of cylinders of each competitor is to be made after each trial and if the cylinders of either contestant are found by the judges to be oversize—the following penalties shall be paid to the opponent as follows: If .003 to .004 inch oversize, $100 forfeit—if .004 to .006 inch oversize, $250 forfeit—if .007 inch or over, the offending contestant shall forfeit entire deposit of $500 and be declared by the judges as defeated.

ABOUT FUEL

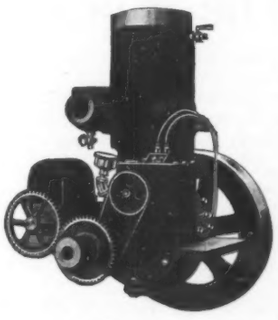
The grade of gasoline shall be the regular 68 degree or 72 degree as furnished by the Standard Oil Co., and both contestants shall draw their fuel from the same source of supply. If Petric acid or any other ingredient is mixed with the gasoline to increase the power by either contestant, that contestant using same shall be disqualified and lose the forfeit and contest. All fuel shall be tested by the judges.

We will be ready at date specified for either test, but this acceptance MUST be answered within 30 days from Jan. 25th, 1910. We believe result will prove beyond all question the Wonderful Power, SPEED, DURABILITY AND STRENGTH of the "SYRACUSE MOTOR." It is UP TO THEM to cover the deposit and prove to the MOTOR BOAT World that they mean business and convince the public that what they say is so. We most EMPHATICALLY DISPUTE THEIR ASSERTIONS and have therefore, the $500 deposited for this purpose and show that we are sincere and not bluffing. In the meantime—Catalog C Free on request.

SYRACUSE GAS ENGINE CO., Syracuse, N.Y.

1910 MIANUS

No Battery No Spark Coil



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Medium Weight—Moderate Speed
Nickel Steel Forgings
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Built to Last a Lifetime

Sizes 3 H. P. to 15 H. P.

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Silent Mufflers and Whistle Outfits

The "Yankee" Silent Muffler for Motor Boats and Automobiles

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Fill every requirement of the law. Fully guaranteed or money promptly refunded. Prices range from $20.00 to $30.00, according to the size of tank and whistle furnished.

The "Yankee" Whistle Outfits Nos. 4, 5, 6 and 7 are furnished complete with all parts as shown in cut, including everything necessary to install the outfit. May be attached to any gasoline engine of any make or description. Takes no power from engine. We have the only automatic check valve that does not operate on compression. An explosion in the cylinder must take place or valve remains closed. No live gases enter tank. This valve is provided with flame destroyer preventing any flame from passing through the valve, and adjustable, after once adjusted requires no further attention. A quartet chime whistle is furnished, giving a deep musical sound which can be heard for miles and is blown by the least pressure of air. The automatic check valve takes about 1/100 part of spent gas at each explosion from the cylinder and stores it in the air tank. When tank is full of air the pressure equals that in engine cylinder and valve closes automatically. Air tank may be placed in locker or any convenient place. Always plenty of air to blow whistle whether engine is running or not. All parts which are in sight after outfit is installed are brass, highly polished, giving a neat appearance. Anyone with a monkey wrench can install the outfit in a few minutes. No parts to get out of order. Write for descriptive catalog to-day on full line. All goods fully guaranteed. Money promptly refunded if not satisfactory. See our exhibit at the Motor Boat Show, Madison Square Garden, February 19th to 26th.

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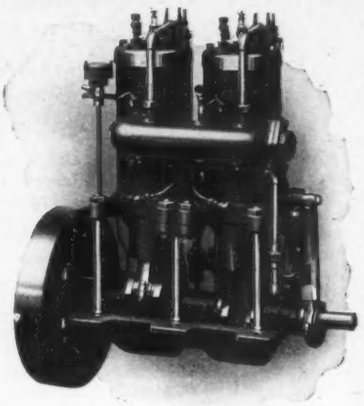
With Open Base and Every Part
ACCESSIBLE!



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is the only perfect scavenging two-cycle engine built. With the **POWELL** there is no leaky base, with consequent loss of primary compression — no necessity of taking apart to inspect or adjust crank shaft bearings or connecting rods.

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The carbureter is below intake ports, and cylinder **cannot flood.**

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2	"	—10	"	"	500	" "
3	"	—15	"	"	500	" "
4	"	—20	"	"	500	" "

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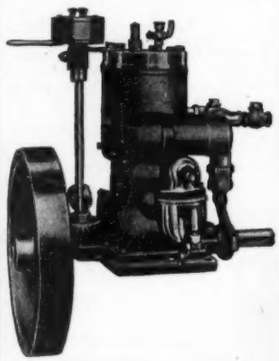
1910 Wonder

THE simplest, staunchest, swiftest, most powerful and efficient engine of its size built. Perfect in every detail, makes speedy launch out of an ordinary canoe, rowboat or yacht tender.

We carry a complete line and will be pleased to show you their merits when favoring us with a visit.



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8 in. Polished Brass Bell,	1.49
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We carry a full line of accessories with which we can supply you at the lowest possible market price for standard supplies.

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Since 1908 The Elbridge Engine Co. has said:

"Elbridge Engines Are The Lightest In All The World"

NOTHING resembling the weights guaranteed by the Elbridge Engine Company are to be found in the catalogues of any of the numerous concerns now advertising, maximum power with minimum weight.

If they have the goods, why be silent as to details?

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Less weight and bulk means more economy and efficiency, IF they are not secured at the sacrifice of durability and reliability.

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Catalogues and descriptive matter for the asking.

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American Made Sails Lead the World

Some of the Yachts for which we have made sails:

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Constellation	Vergemere
Chanticleer	Constance
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Mavis	Valmore
Merlin	Invincible
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Quissetta	

Sloops

Joyette	Little Haste
Ellen	Neola
Timandra	Cherry Circle
Wianno	Spirit II
Athene	Eleanor
Weetamoe	Dorothy Q
Winsome	Little Rhody II
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The owners of these boats would have nothing but the best. Wilson & Silsby sails were good enough for them.

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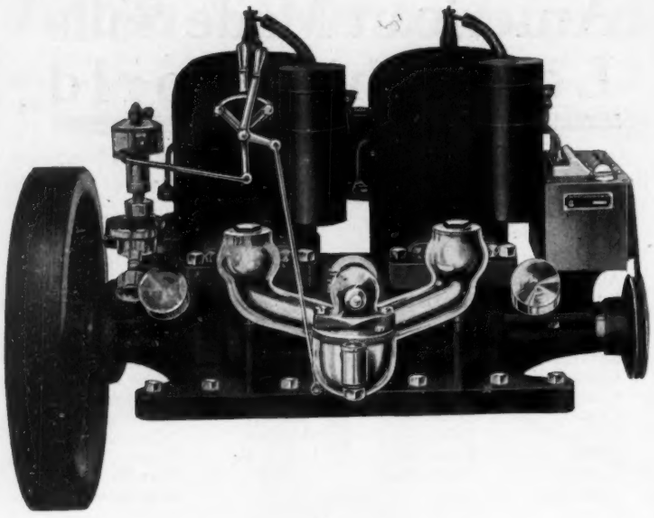
Our Cable Address is "WILSAILS," BOSTON, W. U. C. C.

Ready—a New Catalog Of The Master Magneto!

WE call it a catalog—it is really an elementary, historical treatise on motor boat ignition of surprising interest to every user of a motor boat, because it is a text-book, a handy reference book of practical information on motor boat ignition. The early history of ignition development has been told even to weariness—perhaps because not always well told. We have not gone over this course again, and yet it was not deemed amiss to show briefly and connectedly how the ignition method of to-day grew out of the preceding ones. ¶ Summed up, the different chapters of the illustrated text are the last words, the final analysis of motor boat ignition, for in telling it we have "cut down our ancestral oaks" and told all the world knows to-day about motor boat ignition. ¶ Nevertheless the Type C. B. catalog is free for the asking, and, of course, we would be delighted to have your request for the same.

J. S. BRETZ COMPANY

Sole Importers **Times Building** **New York**



THE 12 H. P. GRAY MOTOR is a race winner—and a giver of all-round satisfaction.

It develops from 12 to 16 H. P.

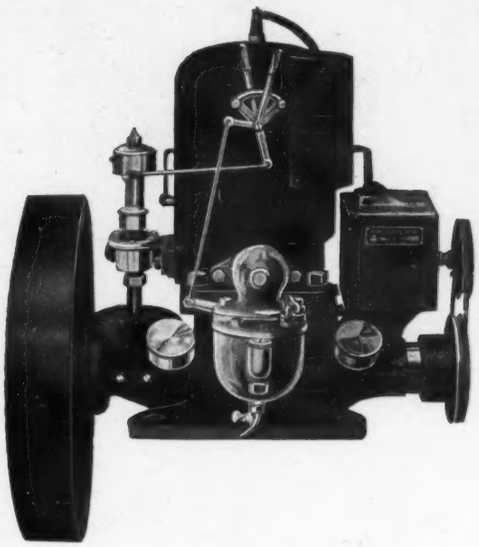
With *complete* boat outfit it sells from $198 to $236 depending upon equipment.

It has *Gray Quality* and *Gray Power* in every heart throb.

For pleasure, racing or business it has *earned* its reputation.

When you buy a Gray Motor you get *all* the power we promise—and it's power you buy.

You cannot buy a better motor—regardless of price. You cannot get a better guaranty. You are *safe* when when you buy a Gray Motor.



THE 6 H. P. GRAY MOTOR won 37 first prizes last summer that we know of—and no doubt many more.

It has hauled thousands of tons of fish, farm products, freight, etc.

It has made—without repairs of any kind—cruises of thousands of miles.

It has carried thousands of happy people on merry boating parties.

It develops from 6 to 9 H. P. and sells with complete outfit from $94 to $118.

There are more of them sold than any other 6 H. P. motor in the world.

It has the *best* material and the *finest* workmanship that money can buy.

Gray Motors are made in the largest and most up-to-date plant in the world devoted exclusively to the manufacture of two-cycle motors.

Built in 1, 2 and 3 cylinders, 3 to 36 H. P.

WRITE FOR 1910 LITERATURE

GRAY MOTOR CO. 927 LARNED STREET **Detroit, Mich.**

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"THE SWINGING, SMOKING SEAS."

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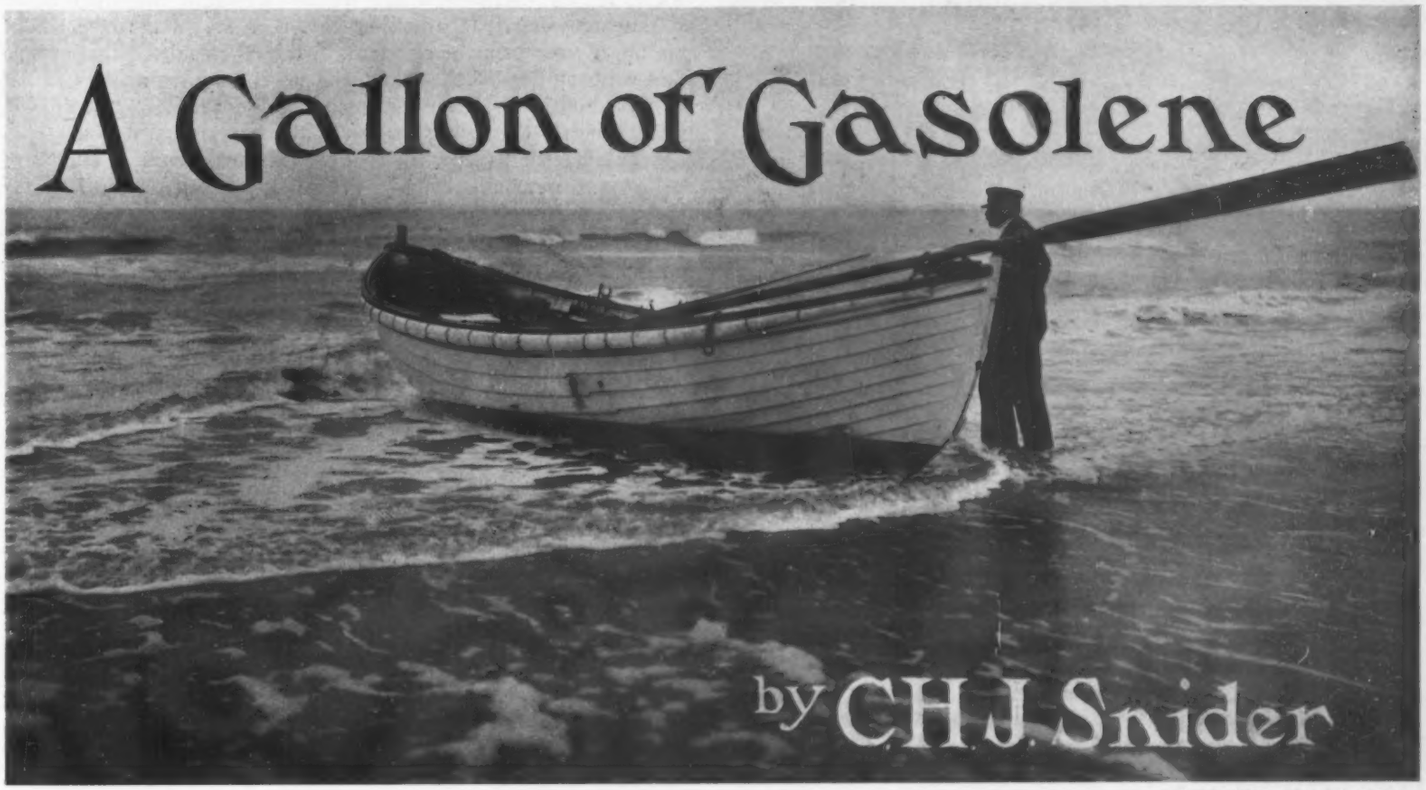
A Gallon of Gasolene



by CH J. Snider

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GASOLENE LIFE BOAT IN USE BY THE UNITED STATES LIFE SAVING SERVICE.

THE LIFE SAVING STATION AT SUMMERVILLE FROM WHICH THE RESCUE WAS MADE.

ALL day we had fled before a sturdy sou'-wester, and the early November twilight found us off the mouth of the Genesee River, with the wind canting southerly and the horizon bluing up for snow.

"It's the last trip in the fall, and I'll take no chances," quoth our Old Man. "Haul her up for Charlotte piers, and we'll lie inside overnight. Looks to me like snow."

"We" were the big, square-topsail schooner Stuart H. Dunn, bound down Lake Ontario from Toronto to Fairhaven, N. Y., for the last load of coal of the season. Aft came the sheets at the Old Man's order, and the big three-master headed up for where the pierhead lights of the little town of Charlotte at the mouth of the river were already glimmering in the dusk.

The harbor tug came snorting out in the wallowing wash of the westerly seas; but we disdained her, and rounded up snugly at the east pier in the mouth of the Genesee and made fast just as the storm signals went up and flashes of snow began to mingle with the gathering gloom of storm and night.

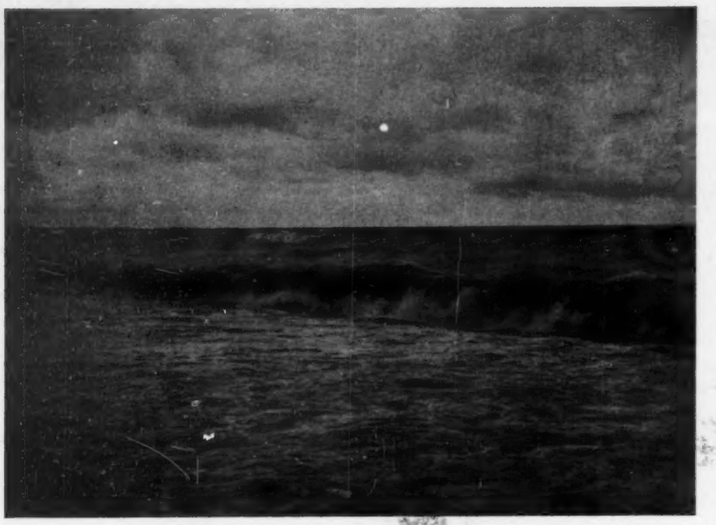
Undaunted by wind or weather signal, the lake tug Proctor came steaming down from the coal trestles in the harbor up the river, with the great black hulk of an iron barge in tow. They were bound for the St. Lawrence, a hundred miles away. A northwest gale, as the storm signals promised, would help them along—if it did not swamp them—and they might reach the shelter of the islands at the foot of Lake Ontario before it broke.

The barge was blocky, high at either end, with deckhouses, and low amidships, with only an iron railing around for bulwarks. One stubby mast for derrick purposes adorned her forward. In white letters, showing faintly in the dusk, we could make out the name "Quebec" on her stern. Her crew of Frenchmen were sweeping the coal grime from her low decks as she passed us.

"Wasting time, my sons," our mate sang out as she passed. "The seas'll sluice her down for you outside."

"*Qu'est ce que c'est?*" we could hear them answer, and then they were swallowed up in the gloom, melting away in a darker blur of smoke in the rain and snow-blurred horizon.

When the last of the twilight had gone it began to blow hard. The weather forecast, as usual, was wrong. We got a nor'-easter. Roaring, tearing, choking the harbor mouth, came the great yellow-white, cotton-topped rollers of Lake Ontario. We began to pitch and heave at our berth as though we were in mid-



HOW THE SEA CLEAN-SWEPT THE PIER.

lake. The wind came in choking gusts, with lashings of rain and sleet between the snow flurries.

"Lines and fenders!" came the call, and the great oaken timbers that dangled from our sides as a protection against grinding on the concrete pier were reinforced by huge bundles of plaited ropes and knotted cable ends. Extra bights were put out on all our mooring lines. Then we got out the best hawser aboard the ship, the huge "river line," kept carefully coiled down for emergencies, 5 inches in diameter, strong and pliant. One end of it was led away up the pier to where a huge steel cleat was rooted deep in the concrete. The other was made fast aboard by many turns round our 24-inch paulpost. This was our headline. Aft we had a "snub," a stout piece of rope shorter than the river line. Between the two we had all sorts of "breasts" and "springs." Over our pierside rail swept festoons of rope like a snake's nest. She was ploughing and rolling so in the rising sea that, to get the last of our crew aboard from the pier after getting our lines out, we had to heave him a bowline and haul him up the side.

"Crack!"

A bight of our 'midship breastline parted. Then another went; and another; and so on, line after line, the whole ship's length. Only our grand old river line held, and it sang like a harpstring as it straightened out with the strain on it as she rolled and plunged.

"Give her both anchors, lads, quick!" sang out the Old Man.

The half-dozen of us in oilskins forward lost no time. The seas were bursting in great sheets of spray over our catheads, almost drowning us on the forecastle head, although we were 20 feet above the water level. But in a trice we had both the 1,700-pound mud grapplers swung clear of the rail and let them go with a roaring splash. Then we veered out 15 fathoms of cable chain to each. Then quickly to the relief of our sore-taxed river line we sprang, gently surging its turns round the paulpost until the strain was evenly divided between the two chain cables and the hempen hawser.

Twice 90 feet of the heaviest chain, nigh 2 tons of anchors, and 30 fathoms of 5-inch hemp! Was it going to hold her? We were lying in 21 feet of water, normally. We drew only 6 feet or so, "riding light and cargo-free," and yet when we settled in the trough our keel once or twice bumped the bottom. When we rose on the crests the grinding wrench on the chain cables dragged even the huge anchors back. Soon our river line was again taut as a harpstring. Luckily, we had a long end aboard, and we veered out more of it. Then bang! went the outer bobstay supporting our bowsprit. The starboard anchor chain, sawing across it in a wild plunge, had snapped it. We had to give her more of the starboard chain to save the inner bobstay; then more of the river line, to equalize the strain. And the gale raved wildly on.

The harbor entrance where we lay was now one mad waste of roaring water. If anything parted, it meant that we would pile up, a wreck, on the cribwork at the other side of the harbor. Had we been headed the other way we could have made sail and let her go on up the river for shelter, taking the desperate chance of negotiating the swing bridge, with the gale chasing us. No tug could handle us as it was. There was neither time nor room to turn and get under way. We had to fight it out or founder where we were.

"Betche that barge's ketchin' grief!" roared the mate suddenly. We had forgotten her.

"Think she's far enough down the lake to get into Sodus?" asked the Old Man.

"No, sir-ee; they'll both be scooting back for shelter here! By crickey, that's her light now!"

And sure enough, past the red glower of the pierhead lamp a tiny yellow light danced and disappeared.

"That's the tug's bright-light," said the Old Man. "Watch for the barge."

By and by a corresponding yellow light appeared astern of the tug. Next, red port sidelights danced and dipped. We could tell, by the way the sets of lights crossed and recrossed one another, how wildly the barge was steering, how huge the watery mountains that leaped between her and her laboring consort.

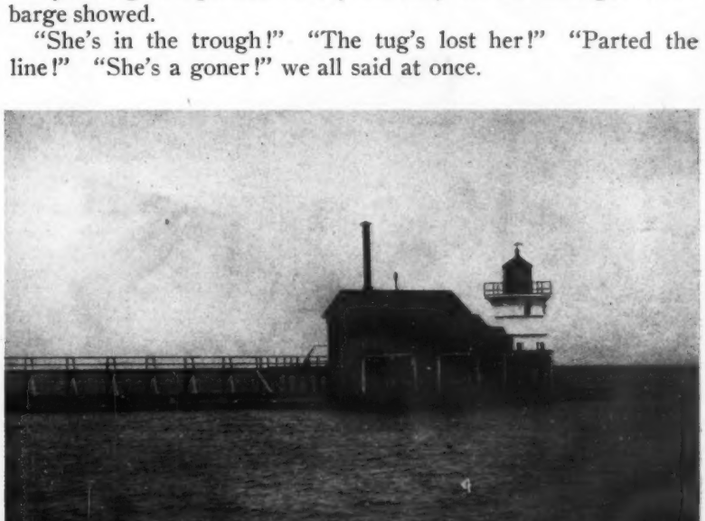
Then came a drama in gleaming points, a will-o'-the-wisp tragedy, with the scream of whistles as interpreter, the diapason of the gale and boom of the surf as orchestra—a drama which held us spellbound, oblivious of our own perilous position.

The dots of yellow suddenly merged, and green appeared opposite the red; and we knew the lurching, swaying light-bearers had changed their course and were straightening out to make the harbor entrance.

"Whoo!" came one short gasp of the tug's whistle, and we knew from long experience that meant: "Shorten up your towline!"

"Wheep!" came the thin answer from the donkey engine on the barge, and the faint flicker of hand lanterns told us her crew were at work heaving in the line so as to give her less range in her wild lurches as the tug brought her into the entrance. Suddenly the lights separated widely and only the red sidelight of the barge showed.

"She's in the trough!" "The tug's lost her!" "Parted the line!" "She's a goner!" we all said at once.



THE LIGHTHOUSE AT THE ENTRANCE TO THE GENESEE RIVER AT CHARLOTTE.

"Whoo! Whoo! Whoo! Whoo!" came wildly from the Proctor. Which, being interpreted, means "I want a tug! I want a tug! I want a tug! I want a tug!"

"Wheep! Wheep! Wheep! Wheep! Wheep!" wailed the unhappy barge. "I'm in distress! I'm in distress! I'm in distress! I'm in distress! I'm in distress!" Five times came the pitiful cry.

"The tug must have the line foul of her wheel," the Old Man said. And again came the wild four calls for another tug, and again the wailing five for help.

But the Proctor was gritty. We could see her lights merge again with the barge's and cross and re-cross, while amid the roaring of the gale the whistles wailed and screamed their dismal fours and fives. Then the two sets of lights separated; and wildly, as they swayed and tossed, the barge's lights now followed the tug's. By some miracle, in that huge sea, and in the darkness, they had managed to pass a towline again. And the whistles ceased.

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A MOTOR-DRIVEN LIFEBOAT WITH 20-H. P., REPLACING THE PULL OF EIGHT OARSMEN.

The staggering, ranging lights drew up abreast of the steadfast glare of the pierhead lamp—then separated again—and once more the wild roar "I want a tug!" and "I'm in distress!" repeated in fours and fives.

"They've parted the last line this time!" the mate said.

Back past the pierhead, into the breakers beyond the east pier, slipped the lights of the wailing barge. Back after her, circling like a mother gull around a wounded young one, went the roaring tug. But it was in vain. Another line, if they had one, could not be passed.

A sudden red flame harborwards turned our eyes from the blackness of the storm-lashed lake. The lifeboat crew had received the alarm.

The tragedy of the lights, which has taken long in telling, in reality only occupied a few minutes. The signal-man at the station had sent in his alarm, and the red danger flare was burned. It was just then that the barge's lights were blotted out, and we knew she had struck and was being clean swept by the billows. But one lantern—her masthead light—could still be seen by glimpses. The harbor tug came panting down from her safe shelter away up by the coal chutes. The Proctor, helpless to do anything for her consort now, came swaying and lurching around the pierheads, made a wild drive past us as we lay in the channel, and raced on up the harbor. Abreast of us the harbor tug met her; but the lower-powered little craft could not stem the seas that were sweeping by us, and after pausing a few moments, dipping and hovering like a storm-tossed gull, she too fled for shelter. But why has that busy flickering of lanterns around the lifeboat station ceased? And what is that dim red light, skimming in swallowlike undulations, along the weltering surface of the channel? What is that panting "Chug-chug-chug" mingling with the gale?

The lifeboat is outward bound.

Motor-driven, with 20 horsepower replacing the pull of eight laboring oarsmen, she shoots to the rescue. Where harbor tug could not go for lack of power, and lake tug could not go on account of draught, the gasolene lifeboat sturdily battles. In the wash of the pierhead she sinks from view again and again; but, once the turn is made, she is quickly alongside the wreck, and her bow sidelights rise and fall in the breakers in dizzying circles near the swaying masthead light of the barge.

The shipwrecked crew, huddled in the shelter of the high forecastle are taken off one by one—nine altogether—eight men and a woman cook. Then the lifeboat lights separate from the wreck. She is going shoreward! Has her power given out? Her lights suddenly disappear! Is she lost, with rescued and rescuers?

We watched and questioned, while the gale screamed on. Then we could see an array of lanterns moving along the east pier, and they halted abreast of us, their gleams flashing on the wet oilskins of surfmen. They seemed to be helping people on to the pier—then to be heaving mightily together on a line. Then the group receded and the lanterns vanished at the lifeboat station.

Morning came. Not "at last," for it surprised us, so close packed had the long night been with thrilling events, so intense yet our desire to probe the mystery of what had happened. It was eight o'clock before it was daylight. And then, in the blur of wind and snow and frozen spray, we could see the black hulk of the barge, grinding away on a sandbar amid the breakers outside of the east harbor pier, just opposite us; while on the beach, partly on her side, lay the blue and white lifeboat, a ragged gap showing in her planking.

And still we did not know what had happened. All that day, and all the next night again, it screamed and blew. People came down to the shore end of the pier we were fast to, but they could not reach us. Those who tried to we beckoned away, for every third billow swept the concrete like a mountain torrent. Even

"THE FROST KING GRIPPED EVERYTHING IN HIS VISE."

the lighthouse men on the pier heads, with an iron footway leading to their quarters 6 feet above the deck of the pier, were prisoners. We could only wait and guess, and watch our brave river line and chain cables hold us—just on the brink of destruction, but still not over it!

But by the next morning the gale had blown itself out and the frost king gripped everything in his vise. Our pier was a mass of ice. Even the boiler of our donkey engine was frozen up. Our huge river line had stiffened to such a mass around the steel cleat in the pier that only axes and crowbars could free it. Along our side hung frozen junks of matted fibre that had been the strands of our other shore lines. But the heaving of the lake's windlashed surface was subsiding, moaning a requiem for the death of the tyrant gale, and after many efforts we thrust a ladder out onto the pier and so got ashore.

"Tell us about the wreck," was our demand of the first man we met.

"Crew all safe," he said, "but yous fellows had a close call yourselves."

"Oh, we were fine and dandy; what about the lifeboat?"

"Well, you see," he answered, thawing out a little so that some information leaked slowly from him, "she got a line in her wheel when they cast off from the wreck. It was no use trying to pull her through the breakers, out past the pierhead and into the channel, the way they came. Ash and arms couldn't do it. So they ranged up alongside the outside of the east pier and landed the people. Then they all tried to heave her along past the breakers to the pier end. Once they'd 'a' got her around there she'd 'a' come in for them all right. But they couldn't tow her, for the seas was washin' them off the pier, so they had to let her go; and in she went on to the beach. She struck a broken spile coming in and stove in a plank of her bottom; but they can fix that all right and tow her off again."

"And the barge crew?"

"Oh, the Frenchies? They're all right now, though they was pretty badly froze and soaked when they got 'em. They owe their lives, you might say, to a gallon of gasolene."

The King of Winter Sports

By H. TWITCHELL

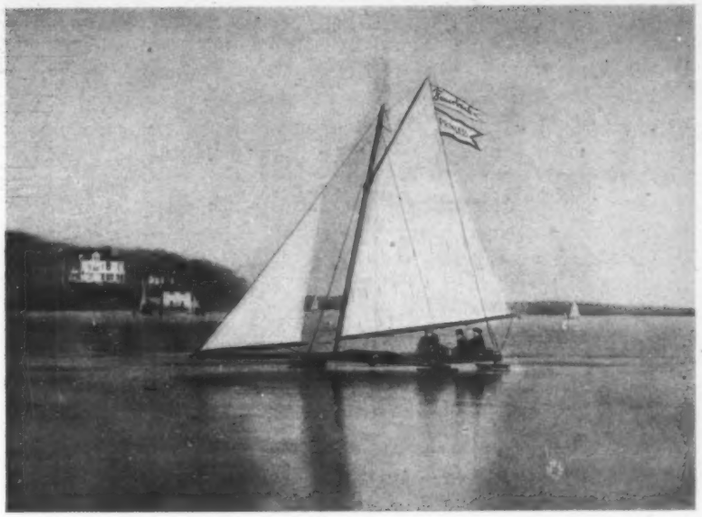
ICE yachting for those Americans that live in the northern half of the country may truly be called the king of winter sports. The boats, like great birds, literally fly through the frosty air, their steel-shod feet spurning the glaring ice. The element of danger in the sport only adds additional zest. This danger is but slight, however. A roll across the ice, quite harmless unless an obstacle is encountered, or a bath in icy water, are usually the most unpleasant things to be encountered when a skilled hand is at the tiller. Novices should always stay near shore.

Since the pleasures of ice yachting have become generally recognized clubs for the furtherance of the sport have been formed in many States of the East and Middle West. While the Hudson River has been the cradle of the sport, the lakes of the Middle West afford advantages which have not been overlooked, and are rapidly bringing them to the front. To be specific, the best-known regions for ice yachting are the Maine, Michigan, Illinois, Minnesota and Wisconsin lakes, Lake Champlain, the Great Lakes, the Shrewsbury River of New Jersey, the Delaware and Hudson Rivers, the upper part of the Mississippi, the waterways around Boston, and Cayuga and Seneca Lakes, in New York. The most noted speedways are, perhaps, the Hudson and Shrewsbury Rivers, Lake Minnetonka and the other inland lakes of Minnesota and Wisconsin, Lake Pepin, in the Mississippi, and Gull Lake, Kalamazoo, Mich.

ZAZA, A RACING BOAT OF THE WISCONSIN LAKES.

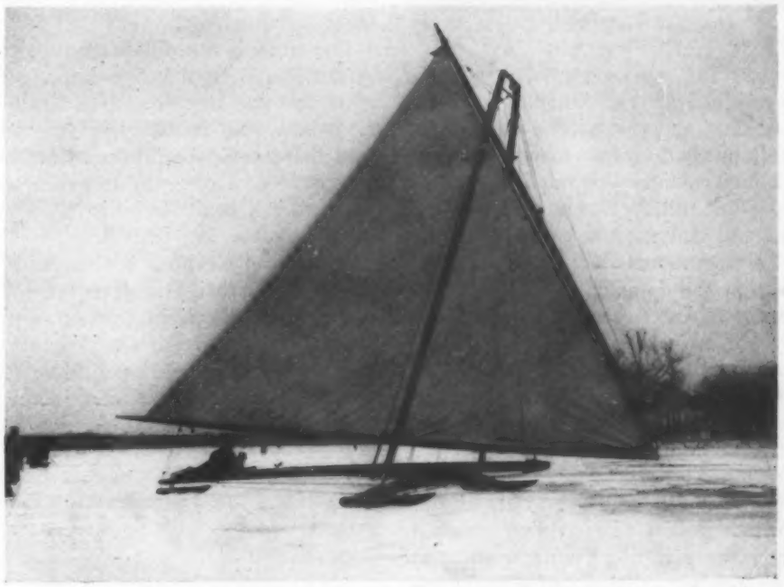
It is needless to state that a great rivalry exists between the two sections of the country, both as to the building of yachts and to racing. As with automobiles, firms are constantly at work trying to add improvements and new features to their craft, and boats from the different States often meet in inter-State races. Occasionally international interest is added by the appearance of a crack Canadian racer. Lakes Winnebago and Minnetonka offer splendid speedways on account of their size. Lake Winnebago is 30 miles long and 14 wide, and is usually frozen over all winter. A great advantage is thus afforded over the East, where the rivers are narrow and the formation of the ice uncertain.

Racing yachts are usually divided into classes, according to the amount of canvas carried. On some of the Wisconsin lakes the boats are divided into as many as four classes. The fastest runs known have been made on the Hudson and Shrewsbury Rivers and on Lake Minnetonka. A mile a



PRINCESS, THE FASTEST ICE BOAT ON LAKE MENDOTA.

minute is not uncommon speed, and 45 miles an hour is considered quite ordinary. Scud, an Eastern boat, owned and run by James B. Weaver, Red Bank, N. J., probably bears off the palm for speed. It is claimed that this yacht ran a mile on the Shrewsbury River in 37 seconds. Others say the time was 47 seconds, but even that was quite fast enough. The winner of the international championship, Jack Frost, a gigantic yacht, weighing over 3,000 pounds and with a sail spread of a thousand square feet, was for years the crack boat on the Hudson River.



SCUD, A RED BANK, N. J., BOAT, IS CREDITED WITH THE HIGHEST SPEED. IT IS CLAIMED THAT SHE MADE A MILE IN 37 SECONDS.

Conditions for racing have been improving in the West during the last few years. The Stuart International Trophy was won in March, 1904, by Wolverine, owned by Commodore D. C. Olin, of the Kalamazoo Club. In the last heat over the 20-mile course the time of Wolverine was 42 minutes, said to be a world's record. The finest yacht of the Mendota fleet is Princess, owned and usually sailed by Emil Fauerbach.

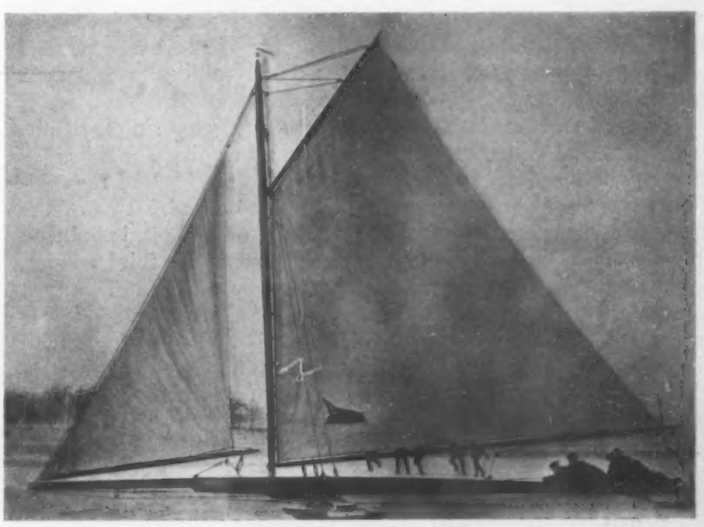
Given smooth ice, a sufficient area and wind, there is no reason why an ice yacht should not make 100 miles an hour. Ideal conditions rarely exist, however. Rivers are narrow, and often the ice is rough and cracked. On lakes the roughness is apt to be even greater and the cracks wider. All this does not deter an ardent sportsman. He often has to hew his way through ice-hills or span cracks by laying timbers across for the passage of two of the runners. The third one will not drop into the water if a plank, called a "jumper," is adjusted at a slant on the bottom of the center beam just ahead of the forward point of the rudder. Its bottom strikes the edge of the crack before the rudder. It is also valuable in sailing over rough ice, preventing the tiller from being wrenched out of one's hand.

Let no man think that, because he is an expert water sailor, he will be able to sail on ice. The two methods of sailing bear little relation to each other, chiefly because of the lack of friction on the ice. An ice yacht soon runs away from the wind, if sailing dead before it, when her pace will slacken. Expert guidance, abetted by much practice, is required. In the hands of a novice an ice yacht may become an unmanageable thing, and bring disaster to both sailor and spectator. Only last year a student of the University of Wisconsin was struck and killed by an ice boat run by other students, who had little knowledge of ice sailing. In racing, running to windward is comparatively easy; but in rounding buoys and running to leeward great skill, nerve and judgment are required.

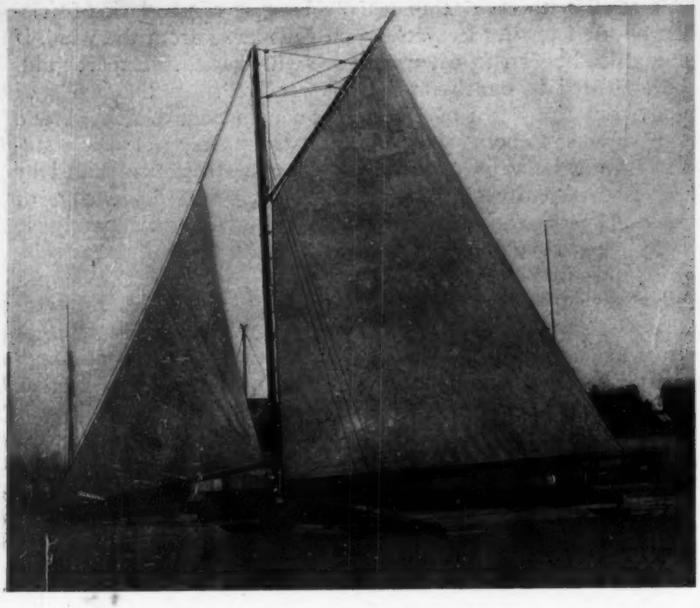
We have spoken above of laying planks to cross cracks. Another way to get over them is to jump them. A boat running at a fast clip will easily clear an ordinary crack under its own momentum. Archibald Rogers writes that he once cleared a crack 21 feet 6 inches wide with Jack Frost. The measurement was taken with a steel tape from the point where the runners left the ice to where they landed on the other side.

Sometimes, however, an icy bath is inevitable. Mr. Rogers, one of the most expert sailors in the country, relates the following incident: "I was once driving off before the wind at a very high rate of speed with one of my large yachts, the Blitzen. I supposed I had good ice before me and a clear course. The wind was blowing fresh from the north, and the yacht was sailing south, or down the river. Glancing up, I discovered, to my dismay, open water directly ahead. I saw this was not a crack that could be jumped; but just good, plain old Hudson River.

"There was no time to dodge it at the speed Blitzen was making. I knew it was either stop or swim. The latter might be necessary in either case; but I gave it the benefit of the doubt and put my helm down, as I thought I had a trifle more room that way.



SIRIUS, A CRACK WESTERN BOAT ON LAKE WINNEBAGO.



ROCKET, AN ICE BOAT OF THE FIRST CLASS.

At the same instant I threw my right leg over the tiller to assist in holding it in place. Gripping the hand rail hard with my left hand, I think—nay, I am sure—I shut both eyes. I heard a great crunching and grinding, and felt the cushions slide out from under me. I appreciated the fact that some mighty force was at work trying to stand me on my head and tear me out of the cockpit, and that this took place twice. I then concluded it was time to open up and look about to see what the damage was, and it was none too soon, either. The yacht had gone around in a circle twice with tremendous velocity almost in her own length. She then stopped, head to wind, and immediately began to slip rapidly, stern first, toward the open water. A slight change of the helm threw the stern up to windward, the sails filled, and a proper distance was quickly gained from the hole.

"Some spectators near the shore, who were watching my erratic gyrations, said afterwards that it was rather a pretty sight: the flying yacht dimly seen through a mist of sparkling crystals which were torn from the ice by the grinding runners, and the crimson cushions flying high in the air. They unfeelingly remarked that it only needed an aerial flight on the skipper's part to have made the scene complete. Everything held except the straps holding down the cushions in the cockpit."

This anecdote serves to show the need of accurate judgment and quick action in an emergency. A man of nervous, excitable temperament would surely have had a bad spill and probably a demolished craft.

The construction of a plain ice yacht is a very simple affair. It consists of a framework with a mast and rigging for sails. A long center beam, or backbone, of pine is crossed back of the middle at right angles by a plank, at the ends of which two of the runners are attached. At the stern a box, or cockpit, is built on the end of the center beam. Under this box is the third runner, which serves as a rudder, and is operated by a tiller. The mast is attached to the center beam forward of the center. The rig most used, especially in the Middle West, is that of a sloop, with jib and mainsail.

In the East, the lateen rig is popular. In this, a triangular sail is suspended from the point of intersection of two poles, whose ends are attached to the extremities of the runner plank. The point of intersection is exactly over the point of juncture of the runner plank and center beam.

In the picture of Scud, which is reproduced with this article, the method of supporting these lateen sails is shown. In this case the two poles do not meet at a point, but are spread about 18 inches apart by a cross bar. This allows room at the top for the yard to swing off, and gives the sail more draft. The method of "staying" the poles with wire shrouds is also shown.

The runners of an ice-boat should usually be made of white oak, and all the timbers used should be flawless and thoroughly seasoned. Wire guy ropes are used to stiffen the frames. The sails are best made of 7-ounce drill. The cost of a good-sized, plain ice yacht might be stated approximately as follows: Mast, boom gaff, $7; sails (one set), $14; all woodwork, backbone, runner plank, etc., $13; ropes, $2; casting for the runners, $3; steel rigging, stays, etc., $6; bolts, mast hoops, pulleys, $8; miscellaneous expenditures, $11; total, $64.

An ice yacht, 22½ feet long by 13 wide, was actually built at these figures. There is no limit to the possible cost of a boat, as one could pay $500 for runners alone. On the other hand, small boats carrying two or three persons can be constructed for very little.

The work is not difficult or complicated, and can be performed by anyone with average knowledge of carpentry, so that the labor cost can be reduced to a minimum. On a home-built boat the sails would probably be the most expensive single item; but even these could be produced at home for a small boat, and for very little cost one could have a boat in which the pleasures of ice yachting could be enjoyed as well as in a more expensive craft.

Seen from elevated shores, with the western sky for a background, on a bright afternoon, a fleet of ice yachts, with sails spread ready for flight, presents a picture of most unusual beauty. It has been the writer's privilege to witness such a picture from the eastern shore of Lake Mendota, at Madison, Wis., and no painter, however skilled, could depict anything half so unique and wonderful.

ROUNDING THE STAKE ON A WINDY DAY IN A CHAMPIONSHIP CONTEST.

By DR. H. BAER

PART II.

WE had no sooner dropped our hook in our new anchorage than a man came out from Cat Cay in a smackee and paid us a visit. Cat Cay was formerly owned by a Mr. Haig, an Englishman, who lived there fifteen years, all alone except for his servants, of whom this man was one. He died last February, after having gone over to Nassau for treatment, where he improved. Later he decided to return, so he and his men started back in his yacht. They had just sighted Cat Cay after crossing the Banks, when the men happened to go below, and found the owner dead in the cabin. This yacht was still there—a 20-ton cutter with a 16-horse Globe engine.

THE WAVING FRONDS OF COCOANUT PALMS.

Our visitor informed us that we were the second American yacht to come through here since the first of the previous January, one having passed the day Mr. Haig died.

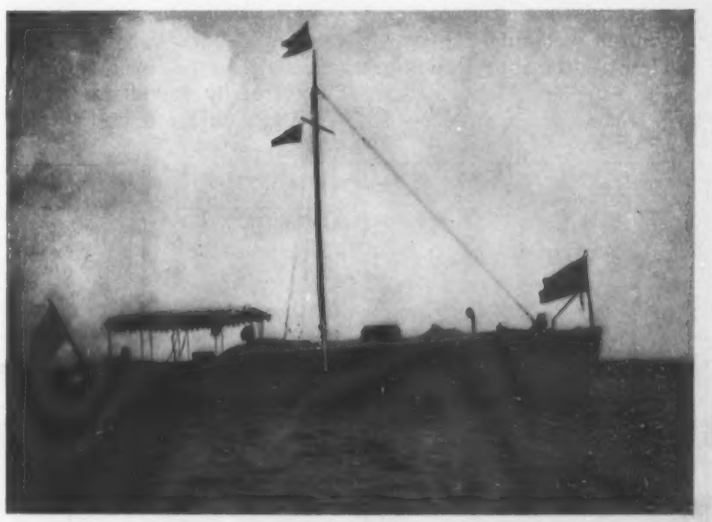
Friday, June 11. It was quite squally all that night, and we were up before daylight and under way at 3:50 a. m. We brought the lighthouse to bear W. N. W. and then steered E. S. E. for 11½ miles. This course carried us clear of the shoals in 7 feet of water. Then we changed our course to E. ⅛ S. and headed for the opposite edge of the Great Bahama Bank, 54 miles away. Sea smooth as glass, rain squalls all around, one hitting us every now and then; but no wind in them.

One who has never been on the Bahama Banks finds it impossible to imagine or even credit an actual description of them. You sail 65 miles with no land in sight, in 15 to 25 feet of water, with the bottom spread out before you as clearly as though there were no water over it. Star fish, sponges, coral and sea fans are in plain view, while every now and then a jagged rock looks close enough to strike the keel; but the lead line tells you there is 15 feet of water between. It is like flying over a sandy desert in an airship.

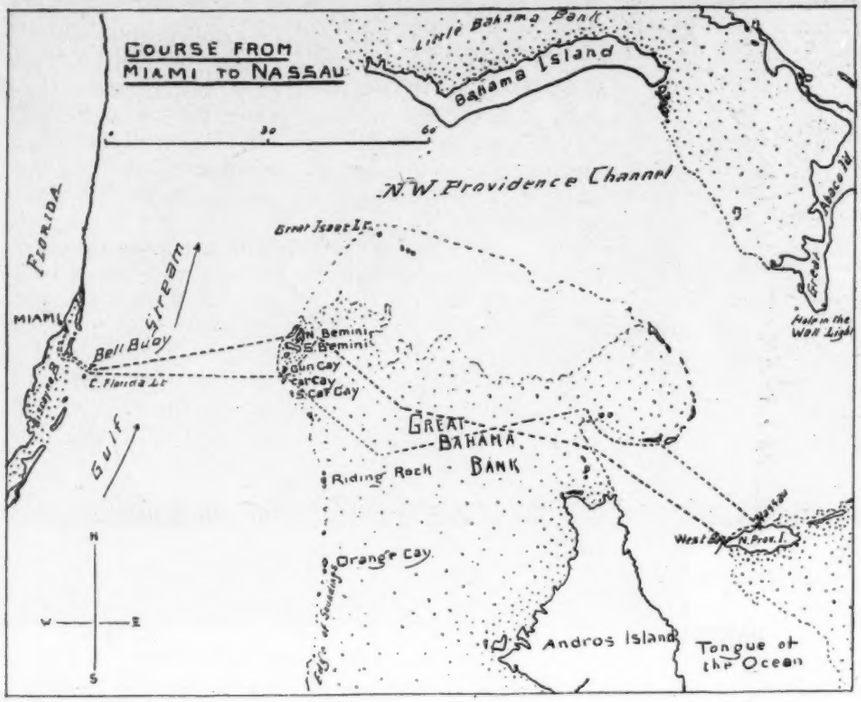
Very few fish were to be seen, though occasionally a needle-fish would skim along the surface, or a few bottom fish could be made out around a rock. There were no flying fish and no porpoises.

We ran along this way until 1 p. m., when we touched bottom, telling us we were across the Banks and must prepare to find the much-dreaded North West Channel. Upon going aloft, we saw two small keys, bearing E. S. E., about 8 miles distant, showing that we had gotten too far to the North, as we had planned to strike the N. W. Channel with these keys bearing E. N. E. Attempted to run to the southward; but found the water shoaling up, and it seemed deeper to the N. W. Headed that way awhile, then, finding shoal water, headed S. W. and then S. E., and before we knew it we were in the dark blue water of the Tongue of the Ocean, out of soundings; for on this edge of the Bank soundings in some places only run out 100 feet from the rocky edge, and then drop off to some 1,800 fathoms of water. We decided to take the chart's word for it, and did not try to see whether it was correct or not.

The North West Channel is regarded as the most difficult place there is on the trip from Miami to Nassau across the Banks.



URSA, LYING IN NASSAU HARBOR, FLYING BRITISH ENSIGN FROM THE STARBOARD YARDARM.



The Coast Pilot for the Bahamas says 11 feet can be carried through it, but should never be attempted in any boat without a local pilot. The charts showing it are all very small scale—so small, in fact, as to be absolutely useless—and mark it "very intricate." The people we tried to get information about the channel from either could not or would not tell us much about it. The eastern edge of the Bank shoals off gradually from 2 fathoms on the Bank to about ¾ fathom about 2 miles before the edge is reached, with deep, winding channels between the shoals. On the outer edge is rock, which can be plainly seen, and so avoided.

The best way to get out when leaving Gun Cay is to steer far enough south to sight the Joulters Cays, to the north of Andros Island; then when you shoal your water to one and a half fathoms, go aloft—if you have a mast—and look for the blue streaks between the shoals. Get into one of these, following its windings, and it will bring you out to the Tongue of the Ocean. Keep a good lookout for the rocks on the outer edge, which are here nearly awash. It is not anything like as difficult as it is made out to be, though it has frightened many a person out of taking the trip.

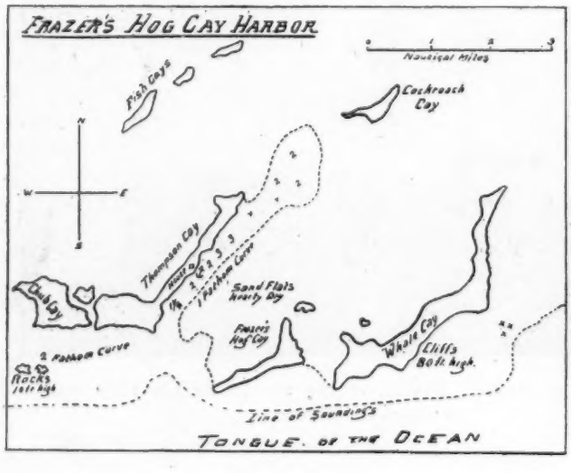
After getting into deep water we ran E. by S. about 19 miles to Frazer's Hog Cay Harbor. This is easily found from two large rocks which stick up 10 feet above water about a mile from shore and a couple of miles west of the entrance. We ran in and anchored in three fathoms, with our anchor and cable as plainly in view as though they were lying on a dry sand beach.

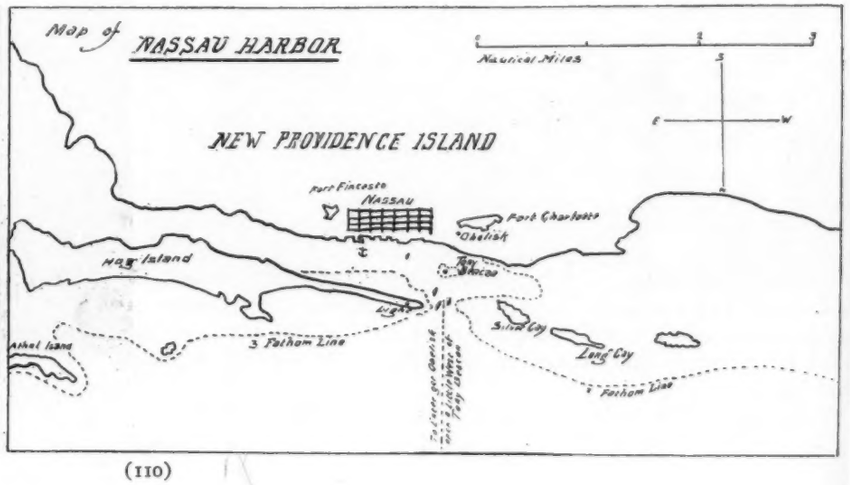
Went ashore and got some cocoanuts, and tried to spear some crawfish; but as the water was so deep, and the tide running very strong, we failed to get any.

Saturday, June 12. Left at 5:35 a. m. and laid our course S. E. by E.½ E. for the entrance of Nassau harbor. Water smooth, with a long swell; plenty of flying fish. Sighted land about 8 a. m., which proved to be New Providence Island, and we reached the harbor entrance at 10, where we were hailed by a pilot boat; but told them that we did not require their services. Ran in and anchored opposite the Colonial Hotel at 10:15.

The harbor master came aboard in a few minutes in a yawl flying the blue ensign, took our bill of health and made us fill out a long blank, and then told us we were at liberty to go ashore. He informed us that we were the smallest American yacht that had ever come to Nassau. We then got up our hook and moved a little to the eastward, to get a better anchorage, and let go our storm anchor, with 15 fathoms of chain in 15 feet of water.

The captain went ashore, so as to get to the custom house before noon, at which hour it closes on Saturdays. He found that we would have to enter, so went to a hardware store and bought two manifests for inbound vessels (price 6 cents), went back





ROYAL PALMS, COLONIAL HOTEL, NASSAU.

to the custom house and, with the assistance of the customs officer, filled them out as in ballast, with nothing on board but broken ship's stores—fee 30 cents. Went to the market and bought some bread fruit, bananas, yams, and other tropical products. Got some ice, at a dollar a hundred, which had been brought down by schooner from Maine, and procured a British ensign to fly on Sunday. Then went back to the boat to get dinner.

From a look at the chart of Nassau harbor, one gains the impression that it is landlocked and well protected, making a fine anchorage; but it is quite the reverse, as at this season of the year the wind always blows hard from E. by N. to S. E. by E. and never lets up. This, with a very strong tide, combines to make a rather rough berth.

Nassau is a quaint little place, very similar to other small towns in the British West Indies, hilly and picturesque. On the top of a hill on the east lies Fort Fincastle, and on another hill west of the town is Fort Charlotte. These are now abandoned and used only as signal stations, a man being kept there all day to hoist a flag for every boat sighted, there being a different flag for each type of boat, with a second flag to indicate the direction from which the boat is approaching. The whole time we lay there we saw no flag put up except the schooner flag, and this flew nearly all the time, as there were always small sponging or fishing schooners coming in, and nearly all of them under reefed sails.

The Colonial Hotel, belonging to the Florida East Coast Railroad Company, is a beautiful building, surrounded by a great number of royal palms, the handsomest of all the palm family. It is open only during the winter season, when the steamer Miami makes three trips a week between Miami and Nassau. We visited all the sights, from the Governor's mansion, with a statue of Columbus in front of it, to the Queen's Staircase, a stairway cut up the side of a perpendicular cliff 70 feet high.

We lay at anchor at Nassau until the following Wednesday, when we pulled alongside the dock to load up with water, ice and gasolene, preparatory to leaving. Got our bills of health, two in number, from the American consul (no fee), cleared from the custom house (fee 12 cents), and made ready to depart. But the weather had different views, and started in to blow a young gale; so we ran out into the stream, dropped our 36-pounder and waited for the wind to go down. Instead of going down it increased, and we started to drag; so about dark we put over our left bower and turned in.

Thursday, June 17. Got under way at 4:45 a. m. and headed for Frazer's Hog Cay, with a stern wind; but sea got so heavy that we changed our course and ran down to the west end of New Providence Island and put into West Bay for shelter. This is one of the many reef harbors, giving good shelter in all except N. W. winds. It may be entered by getting the cocoanut trees on the point in range with Clifton Bluff, a high promontory, and running in. Twelve feet can be carried in by avoiding the rocky heads on the reef, the harbor, like all those in the Bahamas, being navigated entirely by the eye.

We lay there all that day and night, with a big sea breaking on the reef, but quiet enough inside. We also went ashore to a house, got some cocoanuts, picked up shells and coral and got some sea fans. Walked around to Clifton Bluff, which juts out into deep water at the west end of the island, is about 70 feet high and almost perpendicular, and makes a good landmark. We also rowed around the bay, viewing with the water glass the beautiful growth of coral and sponges and the bright colored fishes among the rocks on the bottom.

Friday, June 18. Under way at 4:25 a. m. Ran out into the Tongue of the Ocean and laid our course for the Northwest channel, distant 48 miles. A heavy cross swell, one swell coming up from the south and the other from the east and meeting at the west end of the island, made things disagreeable for a while, and we rolled considerably. As we left the land it quieted down somewhat, but we had a heavy swell until we reached the Banks. Sighted the Berry Islands, and made soundings with Rum Cay bearing E. N. E. ½ E., distant about 7 miles. Found the sea breaking badly on the rocks and the water so rough that we could not make out the reefs. We figured, however, that anywhere that the sea was not breaking would have over 4 foot of water on it, so picked a smooth spot and ran across, dodging sand bars, for about two miles, and laid our course across the Banks, with a stiff stern wind all the way, which ruffled the water so that the bottom was indistinct. With ports and skylights open, the thermometer in the cabin stood at 103 degrees, though we did not notice that it was particularly warm.

Ran W. ¼ N. until 5:25 p. m., when we headed W. N. W., sighting land at 5:45, which, on getting closer, proved to be North Bemini, which seemed to have an attraction for us, as we were about 8 miles too far north. Sighted Gun Cay Light from the masthead, and ran south, keeping about 8 miles off shore, to avoid the shoals. Darkness came upon us, and we had to be guided by the light. Ran in behind North Cat Cay and anchored at 7:45, after over fifteen hours' steady running.

WHERE ONE STREET CROSSES ANOTHER, NASSAU.

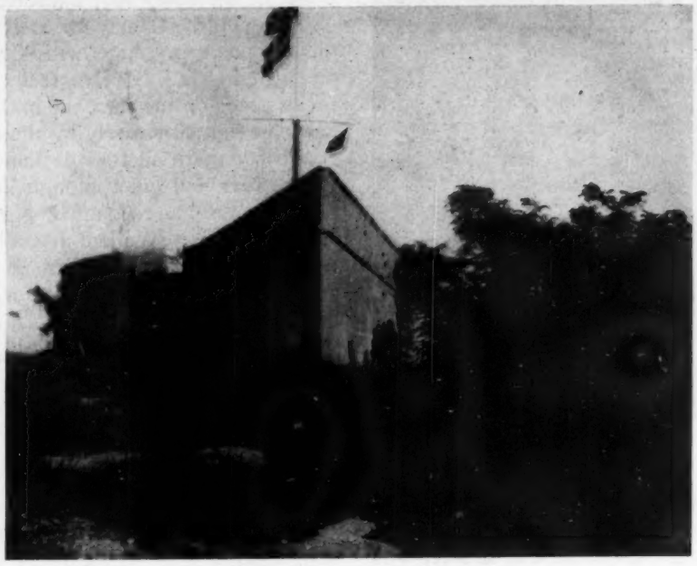
No sooner had we anchored than our friend from Cat Cay came aboard, bringing us six fine large crawfish, which he had just caught. Wind blowing hard from E. S. E., sky overcast and squalls all around.

Saturday, June 19. Dawned squally, with hard E. S. E. winds, so gave up the idea of an early start. Our friend from Cat Island came out, bringing us two fine chickens, and invited us ashore to see the place. Went back with him and saw Mr. Haig's house, which was beautifully fitted up with objects of interest from all parts of the world. From a look out on top had a fine view of the adjacent islands from Bemini to Dollar Harbor, with the sea breaking heavily on the rocks. While we were there a sponge schooner crawled in, of about 40 tons burden, with eighteen yawls on deck. This meant a crew of thirty-seven men, and the question was, where did they put them, especially with a load of sponges on board?

It was high water about 8:30, and by 9 the wind had started to go down, so we got ready to leave, and at 10 a. m. passed out between North Cat Cay and Gun Cay, the lighthouse flag going up as we passed, to which we replied with our ensign. The sea was breaking on the 9-foot lumps just outside and a heavy swell running. It takes longer to go from Gun Cay to Miami than from Miami to Gun Cay, on account of the Gulf current being against you more on the westbound trip, so we opened up our engine for the first time on the trip, and averaged eight and a third miles on the trip across, passing Cape Florida bell buoy in six hours to the minute. Passed a tramp steamer northbound, which was the only thing we sighted, except a piece of wreckage and plenty of flying fish.

We ran up to Maimi, reaching there about 5.30, and anchored opposite the Royal Poinciana Hotel. Sent up the quarantine flag, and in a short time the doctor came aboard, took one of our bills of health and endorsed the other. Got up anchor, ran round into the Miami River and tied up at the Standard Oil dock, where we were greeted as old friends when we stepped ashore and were once more on American soil.

After supper we went ashore to see what an American town looked like, and to see a few white faces after the great number of dark ones that we had been among.



FORT FINCASTLE, NASSAU.

DOCKS AT NASSAU.

AT ANCHOR OFF THE TAMPA BAY HOTEL.

Sunday, June 20. Sent the crew uptown, with our other bill of health and clearance papers, to find the custom house officer and see if he would pass us so that we could get away the next day. This he agreed to do, and a little later on paid us a visit, as did the emigrant agent, and told us that if the captain would bring the manifests of cargo up to the custom house at 4 p. m. he would finish with us. A Mr. Cook, at whose wharf we were, very kindly made out the four copies of the manifest that were needed, and the captain took them up and entered the ship. (Dues, two dollars and twenty-seven cents.)

Took on gasolene, water and provisions, preparatory to an early start next day; got our mail and rested up from our arduous labors until the next morning, when we left Miami at 4:50. Found a strong wind blowing outside, so decided to take the inside route down to Cape Sable, the chart giving 5 feet of water in the shoalest places and in all the dredged cuts; and as both the captain and the mate had been over this ground before, we did not anticipate any difficulty in getting through. Well, we got through; but that was all that we did do, as low tide followed us all the way, and we dragged bottom in every—so-called—5-foot channel, having to list the boat on her side to get through one of them, to say nothing of kicking the mud up in some places for miles. Under present conditions you cannot depend on carrying over 3½ feet through this way unless you pick high water to do it.

After getting out into the Bay of Florida we ran through East Horse Neck Shoals, picking our way between the lumps, and anchored in the lee of Schooner Bank, a big mud flat out in the Bay, in 5½ feet, thinking the tide was low. In a few hours we grounded on the soft mud, but were afloat again next morning.

Tuesday, June 22. This day began on calamities. First of all, as a signal of bad luck, upon getting up we found the crew awake—something which had never happened before. Then on looking to see what time it was, we noticed that the clock had stopped, so had to guess at the time to set our watches, which likewise had all stopped. Got under way about five, ran by Sandy Key and across to Cape Sable. Here we had a beam wind and sea, and the Ursa took a roll that put her gunwale under and scooped water into the cockpit.

Ran up by East Cape and anchored off Middle Cape, a couple of hundred yards from shore, in 9 feet of water. Here we went ashore and got two dinghy loads of cocoanuts, and, on returning aboard, put up the jib, which steadied her nicely, and ran up opposite Shark Point, where we stopped for dinner.

It was squally and blew hard all the afternoon. The jib was drawing well, and we made good time, reaching Coon Key about 4 p. m., at high tide; so decided to go behind Cape Romano through what is known as Marco River. There is a bare 4 feet at each end, but plenty of water after you get inside, if only you keep in it.

We went in without trouble, and had gotten within three and a half miles of Marco village when, all at once, Urso picked herself up and lay down on her side, high and dry on a mud flat; and, to make matters worse, had chosen high water to do it! She was laying on her side in about 2 feet of water, the lower edge of her port lights under water, and when we went below we found it coming into the boat like a fountain through the waste pipe from the sink. We got everything plugged up watertight and attempted to haul her off with the windlass, but found it impossible. Also, tried to right her by putting out an anchor and hauling with blocks from the masthead; but she was leaning over so far, and the pull was so near up and down the mast, that we accomplished nothing, so gave it up, to wait for high tide.

The next morning we were up at daylight, to get the benefit of high water; but we were too high up for it to help us, so made up our minds there was only one thing to do, and that was to dig the boat out. So the captain and mate got in the dinghy and rowed to Marco, where we borrowed two shovels and hired a launch to help us. The shovels proved useless, as the mud would stick so fast to the shovel that it was necessary to take your hand to pull it off. We tied the launch alongside and kept her going full-speed ahead, while we got behind her and loosened the mud with our hands, so that the force of the water from her propeller would wash it off. We worked thus for four hours, by which time we had dug a channel three and a half feet deep the length of the boat. Then, by means of an anchor and tackle from the masthead, we hauled her up on an even keel and started her engine ahead, she being still hard aground. This soon dug out a channel astern, and by getting a rope from the launch to our after Sampson post and starting the launch ahead, while we backed on Ursa's engine, we soon slipped off into deep water, after having been aground for twenty hours.

Ran on up to Marco, where we cooked a combined breakfast and dinner at 2 p. m., and stayed there the rest of the day to recuperate.

Thursday, June 24. Under way at 4 a. m., and followed the mail boat out of the pass, going out by the Swash Channel, inside the beacon, around the north point. The tide was high, but we bumped several times before we got out. Found nice weather outside, and we made good time up the coast, and by 8:30 had passed Sanibel Lighthouse and ran into Pine Island Sound, anchoring for dinner just before we got to Boca Grade Pass, opposite Useppa Island.

As we started out the pass we struck a squall from the northeast, which, with a strong tide running in, made a lively sea until we got out into the Gulf. Wind off shore, with smooth sea, and we ran in Big Sarasota Pass at 6, and anchored opposite Sarasota at 6:30, after fourteen hours of running.

Friday, June 25. We were up before daylight, and the captain and mate scrubbed off the deck and the white paint on the outside of the boat. Cooked breakfast, and by 5 o'clock were under way on the home stretch. There was quite a choppy sea as we crossed Tampa Bay. Ran into the river with all flags flying and showing the British ensign at our starboard spreader.

Quite a crowd had collected on the dock at Bradentown to welcome us home, and by 9 o'clock the Ursa was tied up at her old mooring. The 1,500-mile cruise was at an end; after twenty-five days of voyaging she could now rest.

Henry J. Gielow

By LAWRENCE PERRY

IN the early spring of 1906 a group of nautical wiseacres stood under the bilge of a big yacht in course of construction in the yard of Robert Jacob, at City Island. They did not know that the beautiful fabric of steel and bronze above them would, before the approaching yachting season was over, gain for herself, her owner and her designer the honor of having her name inscribed as the first winner of the King's Cup.

They were talking about the designer that spring day nearly four years ago. "Gielow?" said one. "I did not know that he had the knack of turning out big racing windjammers."

"Well, he seems to have it," said another, glancing at the beautiful lines and curves of the unfinished hull.

"He does," agreed the first speaker. "If I am any judge, he has got a boat there that is going to do things."

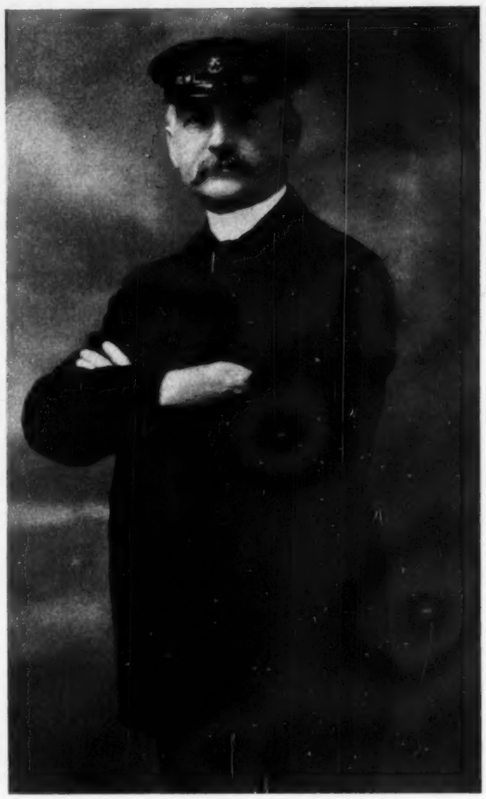
Events which followed proved that he was a judge—eminently so. In the course of the season Effort started in twenty-four events, and made a record of fourteen firsts, six seconds and two thirds. On several occasions she defeated the 70-foot sloops Rainbow and Yankee, and when she went out of commission at the end of the season an examination of the hull revealed not a crack in her interior enamel—proof that she had not "worked" in the least throughout all her hard racing. In many of the races in which the sloop did not finish first she was sailed, not by her sailing master, Capt. Howell, but by her owner, F. M. Smith, who, although a good sailor, was by no means an expert. Still, Mr. Smith was out for sport, not for cups; he got a goodly proportion of both. The success of the sloop, which may also be spoken of as the success of Gielow, was all the more striking because the boat was among the very first of those built under the Uniform Rule, adopted in 1905, and the manner in which the new problems were worked out in Effort had the effect of placing her designer prominently before the public as a candidate for the honor of designing an America's Cup defender in event of another challenge.

But Gielow's most constant activities have been in the motor boat field. He has been a leader in the development of gasolene-propelled craft, from small launches to the large, costly motor yachts of the present day. The problem which he met and solved was that of combining all the facilities of a steam yacht with the advantages which the craft propelled by gasolene presented. As a result, his creations are peculiarly Gielow creations; his hallmark is plain upon everything constructed from his boards, by

which is meant economy of space, beauty, seaworthiness, and clever, not to say artistic, arrangement of details.

Henry J. Gielow is a native of Wisconsin, having been born in the small town of Manitowoc, located on Lake Michigan, about 180 miles north of Chicago. As a boy, his chief pleasure was the making and sailing of model yachts; in fact, when his boy friends did not find him at home it was a safe proposition for them to go to the nearest pond to look for him. Although boat sailing was his hobby, still he was an indefatigable student. He stood particularly high in mathematics and applied sciences.

After finishing his studies, he entered the service of the United States in the middle of the 70's, rendering valuable services to the government during a period of thirteen years. During this time he continued his studies and independent investigations, devoting a great deal of attention to the steam engineering branch of the subject. The form of vessels held an unfailing interest for him, and, reasoning purely from an engineering standpoint, he felt that the old general theories—that water was being displaced laterally at the bow and replaced vertically in the run—were radically wrong; his reason for this being that, as the pressure to a liquid is always perpendicular to a surface immersed in it, and, further, as a body will move in a straight line until acted upon by some other force, the tendency of a particle of water floating around a vessel would be as nearly as possible in a straight line and along a path that would be practically perpendicular to the surface of the vessel. With this as a groundwork, he developed a theory of stream lines, which later he tested with a glass model and proved his theory to be correct.



HENRY J. GIELOW.

With his fondness for boats and everything pertaining to them, he conceived the idea of locating in New York with a view to devoting his entire time to this class of work. The scientific training, combined with the practical experience and natural taste and inclination towards ships and machinery, stood him well in hand in connection with the designing of vessels equipped with steam engines or other motive power. The earlier years of Mr. Gielow's professional work in New York consisted largely in designing vessels and machinery for commercial purposes. Among some of the craft designed by him are the two 260-ton floating derricks owned by the Merritt-Chapman Wrecking Company. These designs were worked out by Mr. Gielow in 1895. In 1897 he designed several sub-aqueous rock breakers, that were used for deepening the channel of the Hudson River to 12 feet at mean low water as far up as Albany.

These rock breakers were a radical departure from the old-fashioned method of drilling and blasting, and upset all the known methods and traditions, but proved eminently successful and far more economical. He also designed a number of dredges and their machinery, all being a step in advance of similar devices. Among his other commercial successes are the five ferry boats of the "Key Route," plying between San Francisco and Oakland, Cal. These vessels make a speed of 17⅝ statute miles in regular service, they run eighteen hours a day, and have never had a breakdown or failure of any kind; the only repair work ever done was the customary work of refitting brasses and minor attention incident to the ordinary wear and tear of a plant. Mr. Gielow designed not only these vessels, but also their engines, propellers, shafting, and the like; in fact, the complete vessel, excepting the boilers and the pumps and electric generating set.

His fondness for yachting, however, soon brought him in touch with yachtsmen and yacht designing. His experience and thorough knowledge of steam machinery were of great help to him in his work. The success of his first boat, the steam yacht Nydia, brought many other orders, among them being for the steam yachts Theresa, Vesta, Albatross, Llewellyn, Marietta, Felicia, Seminole, Linta, Winchester, Elgrudor and Hauoli, the latter being probably the fastest single-screw yacht in the world.

While these steam yachts were being produced Mr. Gielow also designed a number of sailing yachts; but as they were for cruising only, they did not attract the attention that they deserved, for they all proved eminently successful and satisfactory for the purposes for which they were designed; in fact, for cruisers, they proved to be exceptionally fast. One racer, the catboat Dot, designed in 1898, proved very successful, making a clean score of 100 per cent. in the Long Island Sound Racing Association for two consecutive years. Mr. Gielow always took a great interest in the betterment of yachts and boats, and contributed largely to the general adoption of the present Uniform Rule. The first boat designed by him under this rule was the Class Q boat Saetta, which proved to be the best boat in her class during the year. In the fall of 1905 Mr. F. M. Smith commissioned Mr. Gielow to design for him a boat of about 60 feet rating for general racing. This boat was the first racing order received by Mr. Gielow, and how well he did his work has already been told.

Mr. Gielow's name has been identified with motor boats and motor boating almost from their inception; in fact, the first boat designed by him in which a motor was used was the houseboat Whim Wham, designed in 1896, and equipped with two White & Middleton single-cylinder engines, each developing about 30 horsepower. In 1900 he designed the Rush, a 60-foot boat, which had a speed of 14 miles, and was at that time considered a wonderfully fast boat. Among the fast motor boats designed by Mr. Gielow are Onontio, designed in 1904, which made 27.72 statute miles, and next year Veritas followed, with a speed of 29.1 statute miles. During the past three years Mr. Gielow has designed 168 boats; of this number, 127 are motor boats, ranging from 110 feet down to 40 feet in length. All of them have been complete successes.

Mr. Gielow has been an ardent and staunch supporter of everything appertaining to yachts and yachting, giving much of his personal time and attention to the subject. In addition to his active work in bringing about the adoption of the Universal Rating Rule for sailing yachts, he formulated and prepared the original measurement rules for the American Power Boat Association. The formulæ for horsepower, measurement of boats, rating and time allowance were all prepared by him, and have the distinction of being absolutely new and original, and not copied from any other book or publication. They have stood the test

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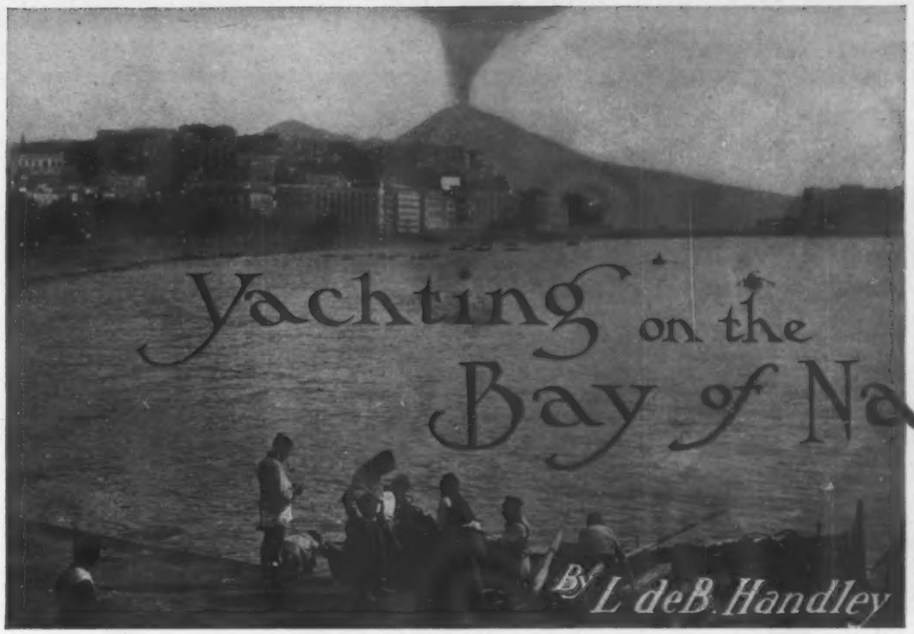


Yachting on the Bay of Naples

By L. deB. Handley

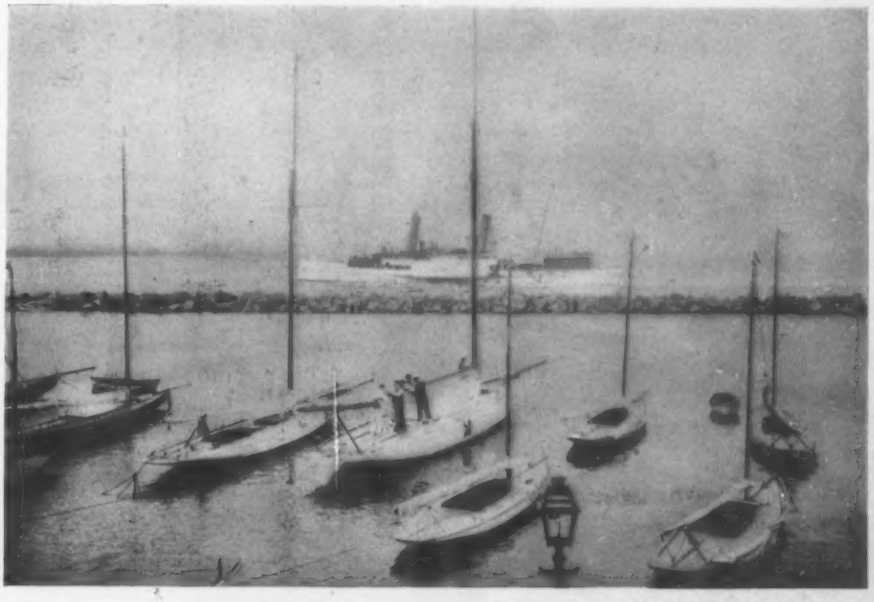
VESUVIUS FORMS A STRIKING BACKGROUND TO THE BAY OF NAPLES.

TRYING TO LOCATE THE QUARRY IN THE FAVORITE PASTIME OF HUNTING THE MONOTYPE.

AMERICANS are so apt to look upon Italians, and especially southern Italians, as slaves to the *dolce far niente*, that they seldom give them credit for possessing those qualities that go towards making a successful sportsman. It may be a surprise, therefore, to hear that there exists in Naples a flourishing band of skillful and daring yachtsmen, who know every trick of triangular sailing, who recklessly enter the dangerous long-distance events with frail racing craft, and who rank with the best sailors in Europe. The fact is really not at all surprising, when one stops to think it over. A nation boasting the glorious naval history that does Italy, with the conquests of ancient Rome and the victories of Genoa and Venice to look back upon, should be expected to produce fearless and able men on the water. Besides this, they have no lack of opportunity, for very few countries have as extended a shore line as does the Italian peninsula, or can offer better inducements. True a goodly part of the western coast is inhospitable and dangerous; harbors are few and far between, and bad storms sweep over it; but this only helps to develop seamanship. One learns rapidly in sailing on the Mediterranean. There is no more peaceful and beautiful body of water in the world when it is calm—and calm weather predominates from April to the end of August—but when the *libeccio* stirs it up into fury, one is lucky to be on land.

The storms are treacherous. On a bright day the fitful, fair weather breezes will be succeeded by a leaden calm, dead and oppressive, and the barometer will take a sudden drop. One knows then that he is in for it; but of what good is the knowledge when the breathlessness of the air makes it impossible for him to move an inch towards safety? He may be ten or twenty miles from port, and, after shortening sail, will have to wait helplessly for the hurricane to break, praying that it may carry him to shelter before he is wrecked.

The wind gives small warning when it comes. An angry puff or two darkens the oily surface of the water and then, suddenly, almost before you know it, a gale is shrieking through the rigging, bending you over with its fury, while it plays havoc with your sails and spars. Nor is flight possible if you are far from an anchorage. There is no running before it under bare poles, waiting for the worst of it to pass over. A sandy or rocky shore stretches hungry arms for you to leeward, and before long enormous breakers will be carrying you irresistibly towards it. And it will not help to beat out against it, trying to reach open sea or the opposite shore. The Mediterranean is all shallow, and a small boat will be battered to pieces before it has gone an hour. The only salvation lies in making for the nearest harbor with what sail can be carried and trusting to heaven that one may get there



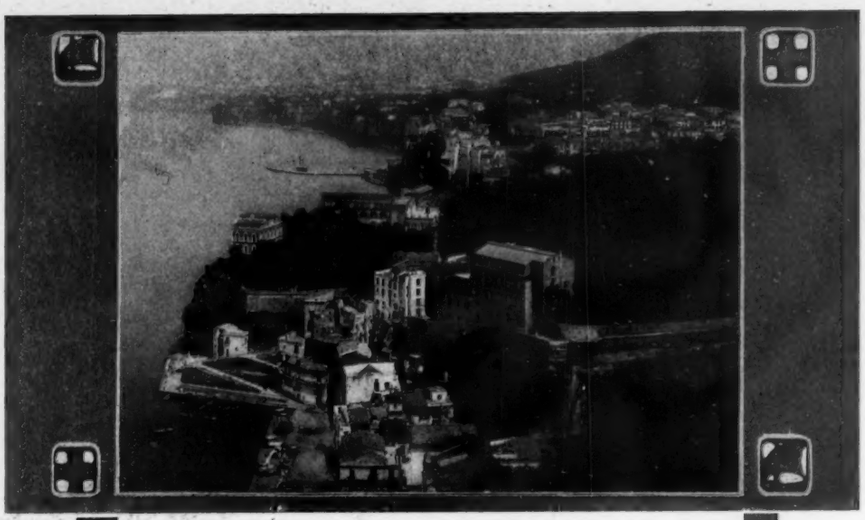
ANCHORAGE OF THE ROYAL SAILING CLUB OF NAPLES.

before the seas begin to break. This takes a couple of hours at least, and with a howling gale a number of miles can be covered in this time.

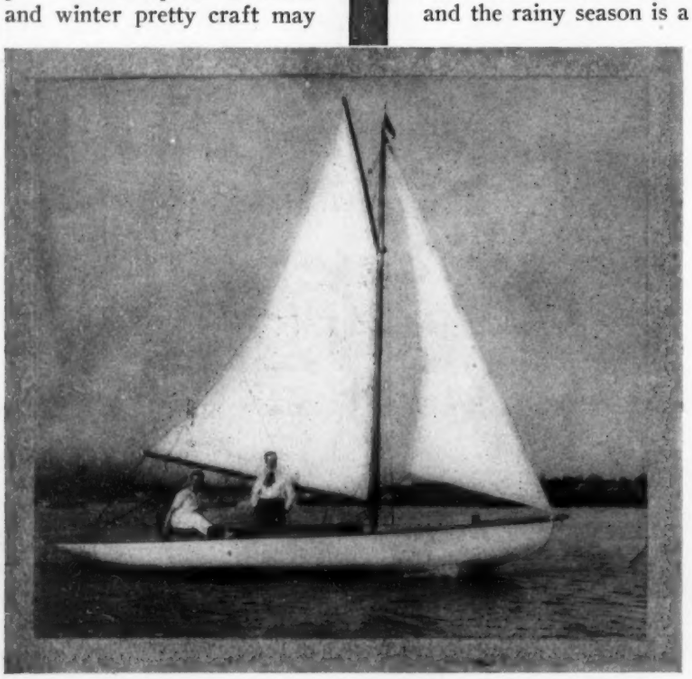
It is among such dangers that Neapolitan yachtsmen learn the practical side of sailing, and the finishing touches to their nautical education are given by frequent regattas in home waters. The schooling is a thorough one, and their reputation is known wherever boats are raced. The Spanish, French and German yachtsmen have good reason to remember them, for they have lost some of their most valued trophies to them. Prince Fondi and his brother, the Count d'Itri, both members of the Royal Sailing Club of Naples, are sailors of international reputation, and among the best handlers of small boats in Europe; while Gandais, Demaris, Anatra, Dalli Paoli, R. Handley and several other of the local cracks can hold their own in any company.

Sailing is an all-year-round pastime in Naples. Summer and winter pretty craft may be seen on the blue waters of the little gulf, and there is practically no reason for laying up. The writer happened to spend part of the winter in Naples not long ago, and was surprised to receive an invitation for a New Year's Day yachting party given by some members of the Royal Savoy Yacht Club. About twenty people went, and lunch was partaken of on a beautiful sandy beach below Sorrento. The boats go out of commission for a short while each year, generally in December, January or February; but this is due more to press of social obligations on the part of the owner, and to his wish to have the boat thoroughly overhauled, than to unfavorable weather conditions. The climate is delightful the year round. The bay is well protected from northern breezes by good-sized hills and by a group of tall islands, of which Ischia and Nisida are the largest. Frost is hardly known, and the rainy season is a short one. On the other hand, the good sailing breezes—the *levantino* in the morning and the *mæstrale* in the afternoon—have a clean sweep. Of course, this also gives access to the dread *libeccio;* but storms are not very frequent in the immediate locality, and there are harbors here every few miles, which can be made before the waves have a chance to become dangerous.

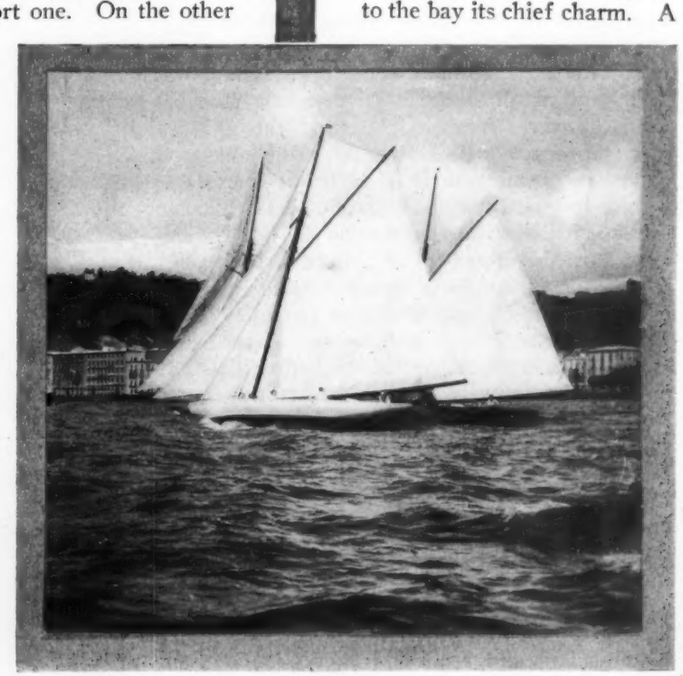
One of the great advantages of sailing in the Gulf of Naples—and all over the Mediterranean, for the matter of that—is the absence of tides. The difference between high and low water is so slight as to be hardly noticeable, so that there are never ugly banks of oozy, black mud uncovered by the receding tide, and no perceptible currents are occasioned by the changes from ebb to flood, and *vice versa.* The water in the bay is clean and transparent, and the beaches are covered with fine white sand. On calm days one can see the smallest object on the bottom in twenty and thirty feet of water. But it is the surrounding scenery that gives to the bay its chief charm. A



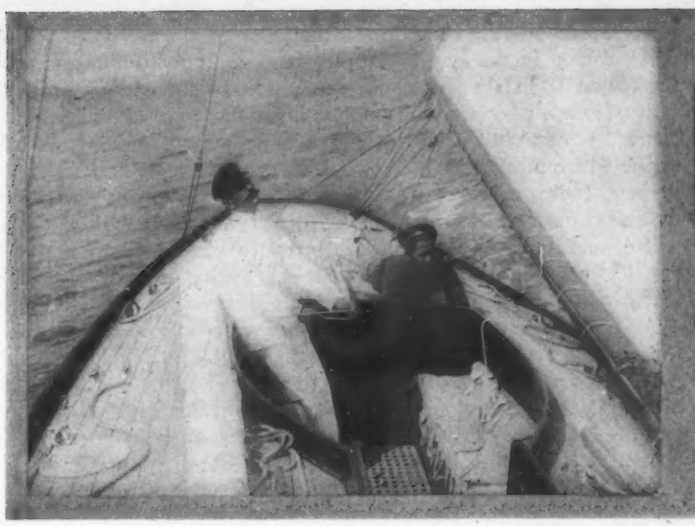
BEAUTIFUL SORRENTO FROM THE HILLS ABOVE THE TOWN.



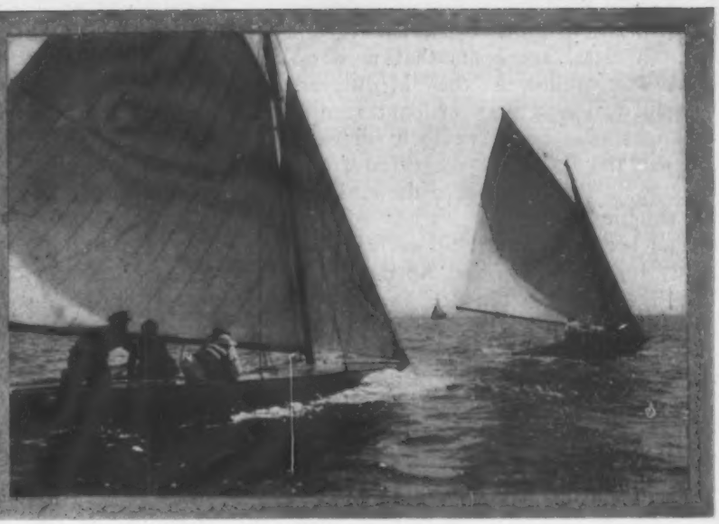
MONOTYPE OR SMALL ONE-DESIGN CLASS OF THE BAY OF NAPLES.



THREE OF THE LARGER YACHTS IN A CLOSE START.



PRINCE FONDI ON HIS RACER ACNAIB.



RACE OF MONOTYPES—DAIDAI II, CHAMPION OF THE CLASS, LEADING.

more beautiful shore line it would be hard to imagine, and its contrasts are simply fascinating. Naples itself, with its picturesque old waterfront, surmounted by graduated rows of soft-tinted buildings, marks the northern end of the bay. Beyond it are green, sloping hills, dotted with the white of numerous villas, and then the shore rises suddenly, forming precipitous cliffs, upon which is perched, like an eagle's nest, beautiful Sorrento. Then more green villas, interspersed with quaint little villages and the famous ruins of Pompeian days, until one comes to the cape, outside of which lies the enchanted Island of Capri. It is a constantly changing panorama, with ever in the background the majestic silhouette of Vesuvius, its perpetual panache of white smoke sharply outlined against the sapphire sky— a sky so intensely blue that it imparts its hue to the waters of the bay.

The racing season in Naples is at its height in July and August, when most of the important regattas are held; but the local yachtsmen are kept busy with competition of some kind or other almost incessantly. Many of them attend the Riviera meets in March and April, then the northern Italian ones in May and June, and later the home ones, while from September on the clubs give several cruising races of from fifty to one hundred miles and a number of "hunting-the-monotype" contests—these latter are an invention of the Neapolitans and quite unique. As the name indicates, it is a sort of hunt, or chase, in which a monotype plays the part of quarry and a larger yacht that of hunter.

The monotype is started twelve hours in advance of its pursuer, and generally at midnight. The rules oblige it to sail in open water six out of every twenty-four hours. To win it must return home and cross the finish line between twenty-four and thirty-six hours of the time the race has been started without being captured by the hunter. The latter is also obliged to sail six of the twenty-four hours and, to be declared victor, must either keep the monotype from crossing the line before the thirty-six hours have elapsed or touch it with an oar or boat hook while it is at large.

The sport is a good deal more exciting than it sounds, because the boats are allowed to be disguised, to hide, to change rigging or sail after starting, and, in fact, to do anything to mislead the opponent. This opens wonderful opportunities to the skipper of strategic and inventive mind, and adds greatly to the fascination of the game. The boats are not allowed beyond certain limits, or outside of the bay; but there are hundreds of little ports and holes along the coast where a 20 or 25-footer may be concealed and baffle detection until the proper moment comes to make a dash for home. The hunter often has a hard time in locating its prey; but when it comes to an open pursuit, its size generally allows it to make an easy capture. This places cunning far ahead of speed in deciding the winner, and the ingenuity displayed by both hunter and hunted in some of the matches has been truly marvelous. Every one in Naples follows the work of the boats with keen interest, and tales of curious happenings are told with gusto for many a day after.

Italians classify racing boats by tonnage instead of by length. They will say "a ten or a twenty-tonner" where we would say "a forty or a fifty-footer," for instance; but the system by which the rating is arrived at is very similar to ours. Length over all and at the waterline, beam, draft and sail area are all taken into consideration, so that the difference is really one of nomenclature rather than of fact. All boats rating under one ton race together, except that there are many small one-design classes that compete almost exclusively among themselves. The others are divided as follows: from one to two and a half tons, from two and a half to five tons, from five to ten, and from ten to twenty. Boats larger than twenty tons seldom race in Naples. A peculiarity of the Italian rules is that no time allowance is given to boats in the same class for scant tonnage. If a boat rates even a fraction of a ton over a class, she has to compete in the one above without receiving time. Of course, this being well understood, and most of the racers being designed and built at home, they are turned out so close to the limit that the difference is generally infinitesimal. When foreign yachts are brought to the Mediterranean, though, and their rating proves at all out of the way, the owner has the sail area increased or decreased at once, and so overcomes any disadvantage.

The Neapolitan fleet is a splendid one. Caprice and Right, in the twenty-ton class; Todo and Sally, in the ten; Los Dos and Demon in the five;

THE ANCHORAGE AT CAPRI.

Dai-Dai II, in the two and a half, and Omen, in the less than one-ton class, are boats that need no introduction to anyone who has followed the Mediterranean season. Sally, in particular, has a very brilliant record. Apart from her Italian triumphs, she has repeatedly defeated the French champion Armen, the boat that recovered from Germany the celebrated "Coupe de France," one of the most coveted of European yachting trophies.

The boats are tuned up early in February that they may be ready for the March and April dates at Nice, Cannes, Mentone, San Remo and Beaulieu. Then in May they start south, taking in what events they can at Rapallo, Spezia, Viareggio, Leghorn and Anzio, and they gradually work down to Naples, so as to be there in time for the home racing.

A custom that has become popular and successful in Naples is that of buying and racing club yachts. The system enables many enthusiasts, whose means do not permit the luxury of keeping boats, to participate in the best regattas, and to do so with that feeling of ownership that enhances ten-fold the joy of victory. These club racers are used for pleasure sailing when no regatta is in sight; but a few days before every contest they pass into the hands of an expert crew chosen by a special committee from among the club members, and this crew has entire charge during the tuning-up period and until the races are over. This plan has proved most satisfactory to all concerned. Both the crack ten-tonner Sally and the speedy little Omen are club boats, the former flying the Royal Sailing Club's pennant and the latter that of the Royal Savoy, and each has placed a long list of victories to its credit, besides the championship of its class.

All racing in the Bay of Naples is done under the auspices of the Royal Italian Yacht Club, the national organization, and its code of rules, which in many points is similar to ours, governs the sport. Races are generally held over a triangular course, each leg of which measures about two miles, and the classes sail around it once, twice, or three times, according to their size. As with us, the committee decrees in what direction the triangle shall be sailed, and tries to send off the boats to windward so that the last leg may be a run or a reach. Warning, preparatory and starting guns at five minutes' interval are in vogue there, as here.

Any properly constituted yacht club may hold a regatta; but the Sailing Club shoulders most of the trouble in Naples, though patrons of the sport often offer the prizes. The Sailing Club has set itself to developing good seamanship among its members, and the local Corinthian races, as well as the long-distance events around Ischia and Capri and the hunting-the-monotype contests, are the outcome of its efforts in this line. Naples needed something of the kind. Professional crews are allowed in most of the big Italian events, and the wish to win is too strong for owners to jeopardize their chances by taking on a green and untrained lot of amateurs. Thus, while good skippers were produced, skillful handlers of sail did not begin to show until the club established events in which the use of professionals was forbidden. Men prepared for these races, and so learned. The fact that the last Corinthian affair brought out seventy-seven amateur tars, and that not the slightest mishap marred the day, shows that progress is being rapidly made.

Pilot Water Navigation

By COMMANDER C. S. STANWORTH, U. S. Navy

PART VII.

(Note.—This is the seventh of a series of articles on Pilot Water Navigation, or that branch of Navigation that does not require nautical astronomy, or the use of sextant and chronometer.—Editor.]

IN the last instalment of this series, in the section on winds and weather, we took up the general laws governing winds and storms, in order that we might understand the causes for the prevailing weather in certain sections. It was thought better to treat of the matter of unusual atmospheric disturbances, such as cyclones, separately, and it will be touched on briefly in this closing chapter of the series.

Tropical Cyclones.

Suppose in the doldrums we have a calm of large area, stagnation in the air, and the surface of the sea like glass. The sun's rays, reflected back from the water, superheats the lower strata of air, and it expands, becoming lighter; but the heavier, cooler air, pressing down equally upon it, prevents its rising. We now have a state of unstable equilibrium, similar to a glass of water with a layer of oil on the bottom and the heavier water on top. At some point in this region of calm something occurs—it may be the sudden dropping of a gull—to create a vent or chimney, and the warm air begins to rise, creating a partial vacuum, or draught. The surrounding warm air immediately begins to flow towards the chimney or vent, and the draught increases. Now if our calm area was North of the equator, the air flowing from North finds itself West of the vent; that flowing from South arrives East, owing to the earth's rotation, and the column of ascending air begins to revolve against the hands of a watch. Centrifugal action tends to enlarge the chimney, and the successive particles of air arriving impinge upon the revolving mass at a greater distance from the center and the increased leverage accelerates the revolutions. As we near the center, the motion of the air becomes an inflowing spiral, so that a particle of air that starts from North enters the chimney in the S. E. quadrant.

The air arriving from North is cooler than that from South, and both are surcharged with vapor from their contact with the surface of the sea. When they meet the temperature of the South air is lowered and condensation of the moisture takes place, rain being formed.

Latent Heat. In order to vaporize a piece of ice, we must apply heat, and we find the operation takes place in two stages. When heat is first applied the temperature rises, and is indicated by a thermometer.

When we have applied 180 heat units per unit of water, the temperature becomes 212 degrees, but no vapor is formed. As we continue to apply heat, the thermometer does not indicate any rise in temperature beyond 212 degrees, and when we have applied 964 more heat units, vapor forms. This additional 964 units is called the latent heat of steam or vapor at ordinary pressure. When vapor condenses, the reverse of this occurs, and before any rain can form the vapor must give up 964 heat units, which is taken up by surrounding objects.

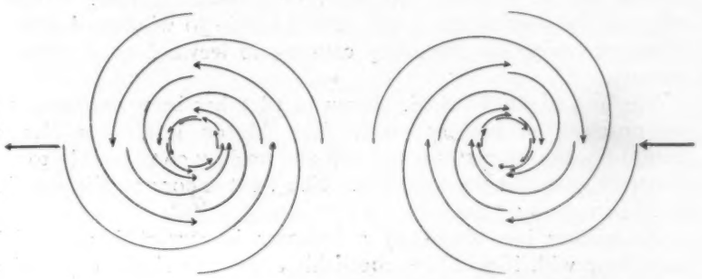
So, when the warm, moisture-laden air from South meets the cooler air from the North and condensation takes place, an immense amount of latent heat is given up. This raises the tem-

perature of the ascending air in the chimney, increasing the draught, and is a potent factor in increasing the violence of tropical cyclones—in fact, it is a saying that cyclones feed upon moisture.

The constant N. E. and S. E. trade winds cause a general movement of the air in the doldrums to the Westward, and our embryo storm moves West with the air.

The North (cool) winds, owing to their indrawing spiral path, enter the chimney in the S. E. quadrant; the South (warm) winds enter in the N. W. quadrant, where the condensation and liberation of latent heat mainly takes place, creating a tendency to draw the entire storm to the Northward. The resultant of these two forces causes the storm to move off about W. N. W., gradually drawing it out of the N. E. trades.

The heated air rising from the equatorial belt flows out N. and S. from the equator as an upper air current, and finally descends, forming in the Northern Hemisphere our S. W. winds. As the influence of the push to the Southward and Westward from the N. E. trade diminishes with our storm's progress North, the pressure, first on the clouds formed at the top of our chimney,



The general movement of the whole cyclonic storm is parabolic, starting with a northwesterly direction, as indicated by single black arrow.

curves the path of the storm first North, then to the Northward and Eastward, its Easterly motion being helped by the inertia of its greater velocity East, owing to its origin near the equator, where the earth's rotation East is greatest.

In obedience to these varying impulses the grand path of a tropical storm is parabolic, and the apex of the path of many of the Atlantic storms is in the vicinity of Hatteras.

The motion of the general storm in the tropics is about 17 miles per hour, and as it curves North in the struggle between the nearly opposing forces its velocity is reduced to about 8 miles per hour, increasing again to 20-30 as it moves off E. N. E. The violence of the storm is due to its rotation about its axis, and not to the motion of translation along its path.

The near approach of a cyclone is heralded by the threatening appearance of the clouds to the Southward, falling barometer, progressive shifts of the wind with increasing violence, and heavy swell. Remembering our rule for finding the direction of the low barometer, and knowing the general path of cyclones in our vicinity, it is possible to shape our course so as to avoid the center.

In the Northern Hemisphere, and particularly for sailing vessels, the right-hand semicircle of the storm, as viewed from its center looking in the direction in which it is moving, is the more dangerous, as the winds are blowing you into the path of the center.

To determine which semicircle you are in, heave-to on the starboard tack and observe the shifts of the wind. If the wind shifts to the right, drawing aft, you are in the right-hand or dangerous semicircle, and you should proceed as long as possible close-hauled on the starboard tack, then lay-to on that tack.

If the wind shifts to the left and hauls ahead, you are in the left-hand or navigable semicircle, and should bring the wind on your starboard quarter and run on that same course as long as possible, heaving-to on the port tack when obliged to, to prevent being taken aback.

If the barometer continues to fall and the wind to increase, but not to shift in direction, you are in the path of the center, and should proceed as in the left-hand semicircle.

The reverse of these rules applies in the Southern Hemisphere.

The circular storms on the Atlantic coast of the United States generally pass to the Eastward, and are heralded by falling barometer, increasing N. Easterly winds, making the center of the storm to the Southward of us. If the storm passes East, the wind gradually shifts to N. W., in which quadrant we may have our strongest winds. The storm's center is then to the Northward and Eastward, and we are in the S. W. quadrant, with clearing skies, decreasing winds and cooler weather. If the storm passes West of us, our shifts of wind are to South, then West, and the wet weather continues after the storm center is North of us, owing to our then being in the S. E. or wet quadrant.

EXTRA-TROPICAL CYCLONES.

These storms have the incurving winds of the tropical cyclones, with an intensity varying with the depth of the barometric depression; but the depression generally covers a far greater area, and is often oval in shape, with the longer axis in the line of the path. The steepest barometric gradients, and consequently the strongest winds, are generally found on the Western and equatorial sides of the depression. They generally follow an Easterly course, inclining towards the Pole, though they may turn to one side, become stationary, or move backwards, and their velocity along their path varies from 15 to 40 miles per hour.

Many of these depressions originate on the arid plains of our Southwestern States, and, moving off to the N. Eastward, are often drawn up the Mississippi valley, across the Great Lakes, and out the St. Lawrence. In that case, fed by the moisture, they may develop great energy as they proceed; or they may follow the coast of the Gulf of Mexico, crossing Florida, again feeding on moisture and increasing in violence. If they follow an intermediate course, their energy is often dissipated before reaching the Atlantic.

ANTI-CYCLONES.

Similar to the low barometer, the region of highest barometer is more or less circular in shape, and the wind circulates around it, but in the same direction as the hands of a watch. The gradients, however, are not steep, and the winds, in consequence, are light. The approach and presence of a "high" is noted by polar and Westerly winds, clear skies and low temperatures.

COMPENSATING BINNACLES.

In the chapter of this series devoted to the compass and compass deviation we did not take up the matter of compensation with compensating binnacles, but left it to take up at the close of the series. Most of the compensating binnacles now furnished yachts have double trays of magnets, and the matter of adjusting them, as explained below, is all that is necessary. A great many nautical men, besides yachtsmen, invest compass correction with a lot of mystery, and having paid a compass adjuster a good round sum for adjusting their compasses, rely implicitly on them, when in reality it is not a highly scientific process (especially with the double tray), or is the result final, as the compass must still be watched for errors that creep in by shifting of cargo, change of locality, etc.

Compensating binnacles have two athwartship arms for carrying the iron spheres for correcting the quadrantal deviation. For correcting the semi-circular deviation underneath the compass are two trays working on a vertical rack and pinion, so that the distance from the compass can be regulated. One of these trays carries pairs of magnets placed athwartship, the other pairs

of magnets placed fore and aft. Or you may find a single tray carrying magnets so fitted that it can be revolved, as well as raised or lowered. These magnets are fitted in pairs so as to clear a central tube in which is placed a vertical magnet for correcting the heeling error.

PRACTICAL COMPENSATION.

Place temporarily in position your iron spheres, and with the ship's head North, put in the athwartship tray a pair of magnets, with the North end of magnets to starboard if your deviation on North is Easterly; to port if deviation is Westerly. Now, with the ship on a known magnetic range, or with the magnetic bearing of a distant object taken from the chart, or with the previously ascertained magnetic bearing of the sun at that time, raise or lower the tray until the compass gives the correct magnetic bearing. Put ship's head on East, place magnets in the fore-and-aft tray—North ends forward if deviation on ship's head East is Easterly; North ends aft if deviation is Westerly—and raise or lower this tray until the deviation is eliminated and the compass gives the correct magnetic bearing. Semi-circular deviation is now eliminated.

Put ship's head on N. E. and adjust distance of iron spheres from compass until the compass gives correct magnetic bearing on the heading N. E. This corrects the quadrantal deviation, and your compass is now adjusted or compensated.

If, with the magnets in the 'thwartship trays, you cannot get the compass to show North, turn the magnets end for end. Same with the fore-and-aft trays and the vertical tube magnet.

With the compensating binnacles now furnished yachts having double trays, this is all that is needed.

In all cases, after correcting your compass the ship should be swung again and a table of the residual errors made out, for we cannot hope to entirely eliminate all deviation.

Heeling Error. To compensate, a magnet is hung in the central tube of the binnacle, in most cases with its North pole uppermost in North latitude. One effect of healing error is to cause undue vibrations of the needle when the ship is rolling, on account of the pull on the needle, first to one side, then to the other. As this is a maximum when heading North or South, put ship's head either North or South when rolling, or set up a rolling by sallying the crew, and raise or lower the vertical magnet until the undue vibrations of the needle are checked. Or the ship can be heeled by weights and the vertical magnet adjusted until the heeling error is eliminated. This compensation will have to be readjusted on great changes of latitude.

On a steamer not permanently listed from cargo shifting or poor trim, the heeling error only causes inconvenience from the undue vibrations of the compass needle, making it difficult to steer a good course. But with an iron or steel sailing vessel that may remain for days heeled on one tack, the heeling error is of grave importance.

Its general effect in North latitudes is to pull the North point of the needle towards the high, or windward, side. Consequently, the heeling error will deflect a ship to windward of her apparent course on Northerly courses, to leeward on Southerly courses.

The loss of the U. S. S. Huron in 1877 has been attributed to an unsuspected heeling error. The Huron left Cape Henry bound South under steam and sail and heeling considerably to an Easterly gale that was blowing. She went ashore at Kittyhawk, N. C., and was a total loss.

No matter how carefully a compass is corrected, a careful navigator will, if possible, check his compass twice a day while under way by a sun azimuth.

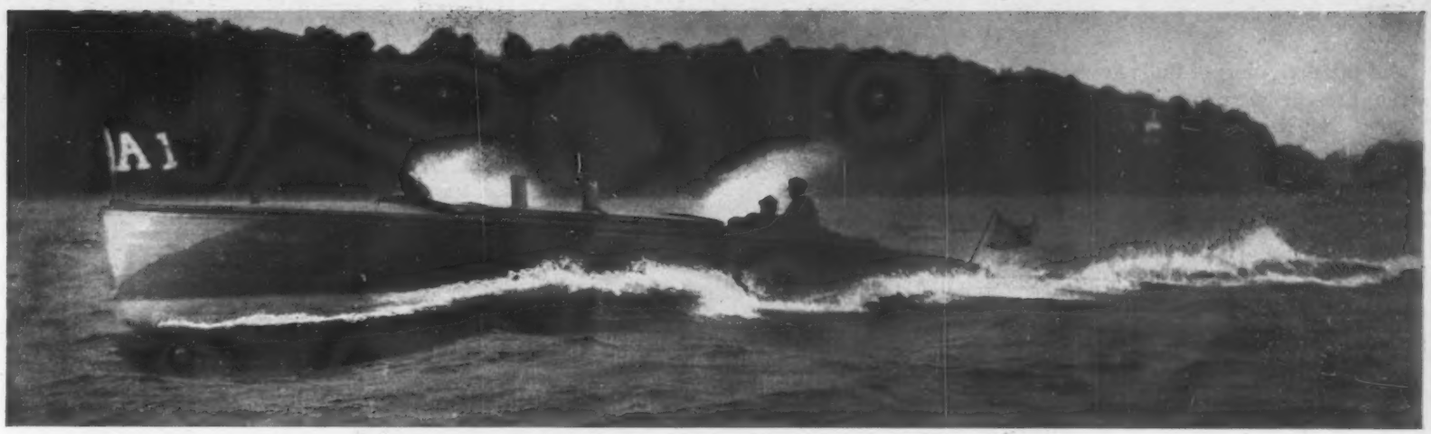
The Month in Yachting

ANNOUNCEMENT that the Larchmont Yacht Club will have a one-design class of 21-footers next season will come as good news to all interested in the racing of small boats. There was a time when the Larchmont Yacht Club vied with the Seawanhaka-Corinthian Club in the building of special small classes, but of late years the Larchmont yachtsmen have been content with the reputation of drawing more small boats to their regattas than attend any two regattas of other organizations along the Sound. Now with a one-design class of their own building, we may confidently look for rare sport up Larchmont way next year. William Gardner is the designer, and the dimensions are 33.7 feet over all, 21.4 feet waterline, 7 feet 9 inches beam, 5 feet draft, and a sail area of 500 square feet. Already five boats are being built at City Island, the owners being L. G. Spence, M. Goldsmith, Bryan Alley, Robert Jacob and Alfred Hennen Morris. "Bry" Alley will be welcomed as he returns to the racing contingent of his club, and it is also good to see Alfred "Henne" Morris waking up. He it was who built Gardenia, then, as now, one of the smartest racing sloops afloat. Her care and management took too much of his time, and so after a while he retired from active racing and induced Harry Johnson to sail her in various races. There was little satisfaction in that, and he finally sold her at a wonderfully cheap price. Now, with a smaller boat, it is hoped that this sterling yachtsman will be found more frequently in regattas.

JUANITA, ONE OF THE MOST SUCCESSFUL BOATS OF THE HANDICAP CLASS OF LONG ISLAND SOUND.

While on the subject of the Larchmont Club it is interesting to note that it has chosen for its commodore the chief officer of the Atlantic Yacht Club last season, Commodore Leonard Richards. It is not often that an officer steps from one club to a similar office in another. I have heard some mutterings of late that loyalty to the Atlantics might have suggested to Commodore Richards that he wait at least a year before taking office in another club. I, personally, fail to see it. For three years Commodore Richards has served the Gravesend Bay organization, and served it energetically and loyally. There was absolutely no reason why he should have declined election to succeed Wilson Marshall, and, as far as Larchmont is concerned, the club is to be congratulated. Commodore Richards' flagship will be the steam yacht Carola, and while she is neither so big nor so picturesque as the former flagship Atlantic, she will serve just as many practical purposes—perhaps more. Lest what I have said about discontent over Richards' election to Larchmont assume undue importance in the minds of readers, I may add that such expressions came from no persons at all prominent in the Sea Gate organization.

All yachtsmen who have ever anchored in Newport harbor recall the Lime Rock Lighthouse, on a cluster of rocks to the southward, where Ida Lewis has kept the light for thirty years. In



THE FIRST DIXIE, WHICH BROUGHT THE BRITISH INTERNATIONAL TROPHY TO THIS COUNTRY IN 1907.

point of fact, she has lived on Lime Rock just fifty-two years. She was seventy years old last March. For twenty-five years Miss Lewis' father was keeper of the lighthouse, but seventeen years of that time he was a cripple and his daughter attended to his duties. Eventually an act of Congress made her successor to her father. Ida Lewis, the "Grace Darling of America," is as much a part of Newport as the old stone mill. When she celebrated her golden anniversary of fifty years on Lime Rock two years ago, all Newport participated. Many throughout the country no doubt have in their possession a steel engraving of Ida Lewis rowing her boat through mighty waves, on rescue bent. As a little boy I saw it and formed an exalted idea of the might of the Newport harbor billows. That impression is gone now that I have seen them at their worst; but, nevertheless, Miss Lewis' record is not one to dissipate boyhood ideas concerning her. She has, in fact, a medal from the New York Life Saving Association, which was given her for the rescue of two men in a storm in 1869. A boy set out in a rowboat from Fort Adams with two soldiers. The boat upset and the boy was drowned before Miss Lewis could reach the scene, but she saved the soldiers. In 1882 she pulled through the ice-laden harbor and rescued two men from drowning. Congress voted her a medal, and later the Massachusetts Humane Society gave her another. In all, she has saved eighteen lives. The point of all this is that the Newport Yacht Club last month honored themselves by making Miss Lewis an honorary member of the club. The distinction of being the first woman member of this club is hers. Long life to her! May her light always hold out to burn !

So we are to have a motor boat race for the International trophy next year. According to W. A. Jupp, secretary of the Motor Yacht Club of Great Britain, nothing will be left undone to take back to England the prize which Dixie won on Southampton water in 1907, and which Dixie II succeeded in keeping here in 1908, when the British sent over Wolseley-Siddeley and Daimler. As it appears now, the Motor Yacht Club will construct three boats and will race them on the other side, presumably in the Mediterranean. The two swiftest boats will be sent here to meet the American defenders. The British Motor Boat Club has also challenged and will send a boat over. It is assured that the British will proceed in the matter of attempting to win back the cup with characteristic care and dogged determination. It should not be necessary to intimate that those upon whom responsibility for keeping the cup here devolves should emulate the example. There should be no repetition of the abortive showing at the trial races in 1908, when but two or three of the speed boats built for cup defense were ready for racing. Neither should the experiences of Dixie II last season on the Mediterranean be forgotten. What is absolutely necessary is a long period of preparation. It is not too early to begin the construction of the engines

Wind—At the start wind N.W. 15 to 20 knots, increasing to half a gale by the time the fleet had reached Shovelful Light vessel; then moderating to strong. Northerly all afternoon; increasing again to half a gale by 10 o'clock P. M., and blowing hard with short, high seas all night. The velocity of the wind was estimated at 40 knots.

10TH-11TH AUGUST, 1909.

Class Steam Auxiliaries.—Distance, 152 miles.

	R. M.	S. P. M.	Start.	Finish.	E. T.	T. A.	C. T.
Aloha	81.80	22.84	10.12.00	D.N.F.			
Ariadne	83.10	20.96	10.12.00	D.N.F.			
Intrepid	100.	00.00	10.12.00	D.N.F.	disabled		

Class Special Auxiliaries.

Idler	76.50	30.98	10,12.00	D.N.F.			
Aloha	81.80	22.84	10.12.00	D.N.F.			
Intrepid	100.	00.00	10.12.00	D.N.F.	disabled		
Ariadne	83.10	20.96	10.12.00	D.N.F.			

Class M, Sloops.

Adventuress	45.43	102.50	10.17.00	7.39.55	69.22.55	4.19.40	65.03.15
Eleanora	44.92	106.37	10.17.00	D.N.F.	dismast'd		

Class M, Yawls, Special.

Polaris	45.20	allows	10.17.00	10.20.10	60.12.10	0.00.00	60.12.10
Cleona	44.30	0.01.00	10.17.00	5.12.30	66.55.30	2.32.00	64.23.30
Lasca	N.M.	0.01.30	10.17.00	D.N.F.			

Class K.

Aurora	64.80	52.35	10.22.00	12.33.21	26.11.21	2.12.37	23.58.44
Winsome	65.00	51.93	10.20.22	D.N.F.			
Istalena	65.00	51.93	10.21.28	D.N.F.			
Weetamoe	61.60	59.22	10.22.00	D.N.F.	disabled		
Windward, Y.	56.50	71.37	10.22.00	D.N.F.			

Class Special.

Vigilant, Y.	91.56	9.69	10.21.18	9.33.48	35.12.30	0.24.33	34.47.57
Weetamoe	61.60	59.22	10.22.00	D.N.F.	disabled		
Windward, Y.	56.50	71.37	10.22.00	D.N.F.			

Class D.

Taormina	57.78	68.14	10.25.53	4.30.09	42.04.16	2.52.37	39.11.39
Irolita	59.00	63.11	10.27.00	D.N.F.			
Muriel	63.70	54.65	10.27.00	D.N.F.	disabled		

Class D, Special.

Taormina	57.78	68.14	10.25.53	4.30.09	42.04.16	2.52.37	39.11.39
Irolita	59.92	63.11	10.27.00	D.N.F.			
Dervish	51.10	86.19	10.27.00	D.N.F.			
Muriel	63.70	54.65	10.27.00	D.N.F.	disabled		
Miladi	44.65	107.45	10.27.00	D.N.F.			

Class B.

Elmina	82.60	21.68	10.31.30	9.08.08	22.36.38	0.55.15	21.41.23
Sea Fox	76.30	31.30	10.32.00	9.34.08	35.02.08	1.19.18	33.42.45
Corona	83.81	19.96	10.30.38	D.N.F.	disabled		
Queen	86.00	16.92	10.30.43	D.N.F.			
Ariel	73.50	35.97	10.32.00	D.N.F.			

WOLSELEY-SIDDELEY, WHICH, WITH DAIMLER II, TRIED TO RECAPTURE THE TROPHY IN 1908.

and the designing of hulls at the present moment. Engines that drive motor boats to victory are not made in a day, and after they are made they are to be studied carefully by the men who are to drive them in the crucial tests. Faults then would be checked as they appeared, and by the time of the international contest American motor boat men would at least have the satisfaction of knowing they were banking their pride upon craft which had been thoroughly tried out and would give more than slight warrant for hopes of victory.

The story of the New York Yacht Club squadron's cruising race from Vineyard Haven to Portland on the annual cruise of 1909 is told in every essential way by the table on the preceding page of this run as set forth in the annual report of the regatta committee.

The report shows, further, that the regatta committee started races on eleven different days. The number of yachts entered in these events was 169, which number does not include a duplicate entry of a yacht starting in different events on the same day. There were no challenges for the Brenton Reef or Cape May Cups and none for the Niagara IV Cup for steam yachts. The last time this steam yacht trophy was contested for was 1906, I think, when Tarantula beat Niagara IV. Steam yacht racing is not popular, somehow. You would think that some of the members of the New York Yacht Club who own crack "steamers" would arrange something once in a while. As it is, when a man thinks he has a yacht that can go he takes a fall out of those poor Jersey Central, Sandy Hook steamboats.

There never was, and perhaps never will be again, such racing as characterized the returning fleet after a cup race off Sandy Hook. Helter skelter for port raced the hundreds of boats, tugs pairing off against tugs, excursion boats against excursion boats, and yachts against yachts. Anywhere you looked you could see a spirited race; the ocean resembled a village flying down a mountain side. Great days those! Will they ever come again?

There is a fine row, it appears, among Lake Michigan yachtsmen as a result of the adoption of the universal rule of measurement by the Lake Michigan Association at its recent meeting. At this meeting the clubs which voted for the adoption of the new rating were Evanston, South Shore, White Lake, Macatawa Bay, the Chicago Yacht Club and the Illinois Athletic Club. Of these, the first three clubs have no racing boats at all, Macatawa has seven, and the Illinois Club even less. In other words, the Chicago Yacht Club is the only organization among those which voted in the affirmative which has a really powerful representation of craft. The Jackson Park and Columbia Yacht Club members are exceedingly wrathy, and declare that no boats flying their burgees will enter any open regatta next season which is sailed under the universal code. There are charges that the change was inspired by yacht builders who are looking for busy times in their yards next year, and that the interests of racing on Lake Michigan were not really taken into consideration.

COMMODORE LEONARD RICHARDS, THE NEW HEAD OF THE LARCHMONT YACHT CLUB.

Well, I do not profess to know the rights and wrongs of the situation. All I can say is that it is a pity that trouble should arise just at this time when Chicago is really beginning to take a place of national importance on the yachting map. Why is it that progress along almost any line of sport is thus hampered and delayed and sometimes irretrievably retarded?

While on the subject of racing rules and their complications, it is surprising to me that handicap classes, for boats that have either been outbuilt or legislated against by the numerous changes in rules we have had in the last few years, should not have been formed more rapidly. The principle is simple, as the numerous articles we have printed on the subject show, and the racing has been close and keen, with almost none of the acrimony that attends regular class racing. A look at the table printed in our December issue will show how flourishing the class is in these waters, and how evenly the boats averaged up on the season. Juanita, a Crane-designed boat of 1905, and one of the first racers in the Q class, is a good example of the opportunities offered to racing boats five years old or more. She led the fleet in points, taking 7 firsts, 6 seconds and 4 thirds out of 22 starts. I should like to see the system tried in other localities.

GRAYLING, OWNED BY O. J. MULFORD, OF DETROIT, AND A WINNER OF MANY LONG-DISTANCE RACES ON THE GREAT LAKES.

How to Put On a Whipping

By W. E. PARTRIDGE

THOSE who are just beginning to take an active interest in yachting, or are sailing their first boat, usually find the details of rigging and fitting out very interesting. They usually like to do this part of the work themselves and are always glad of a few lessons in elementary sailor work. It is always advisable to know some of the simpler tasks. These are not properly classed under the head of "knots" and are usually neglected points in the education of the youngster. So, for the sake of the beginner, we will start at the bottom of the list and work upward.

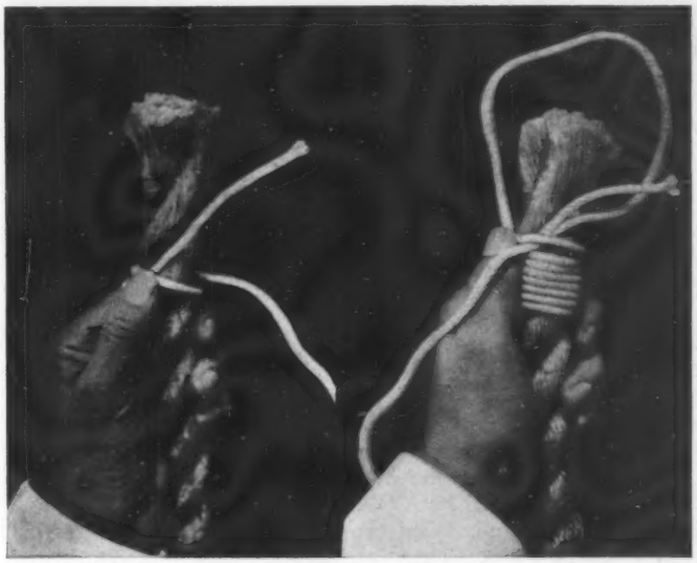


Fig. 1.—Whipping begun. Cord laid in a score and first turn made.

Fig. 2.—Leaving the first end out. Putting the second end in. Whipping half finished.

A whipping will be our first and most important thing to know about. It is usually employed to prevent the end of a rope from unlaying or fraying out. It is better, in many cases, than any kind of a knot because it leaves the end of the rope compact and tight, with just enough stiffness to allow of its being threaded through a block, or any lead where a rope has to be run. Whipping is a simple operation, and after one knows how can be performed with great rapidity. When well done it will stay in place as long as the rope holds together.

Simple as a whipping is, a large number of persons do not seem able to put one on properly, so that it will not pull off. There is no excuse whatever for the frayed ends and overhand knots so frequently seen about small boats. It ought to be remembered that braided cord and rope, although it frays out quite slowly, is much neater and easier to handle if the ends are carefully whipped.

Whipping may be done with almost any small stuff that has sufficient strength. For ropes up to one inch or an inch and a quarter in diameter, corset lacing is about as good as anything. It is strong, cheap and has the advantage of clinging firmly to the rope because it is so soft. Its great strength enables it to be wrapped very tightly. In addition to this it is on sale wherever ship chandlery is to be had.

To begin, take the rope in the left hand with the end to be whipped pointing to the right. Into one of the scores place the end of the cord to be used for whipping as shown in Fig. 1. Carry the cord away from the body, over the rope and bring it up and over again so as to fasten the end laid in the score. Continue winding, laying each turn snugly against its neighbor all the way round, drawing each one tight and not allowing one to ride upon another.

When the whipping is about half on, as in Fig. 2, leave the end that has been lying in the score out; that is, do not wind any more turns upon it. Now put the free end in just alongside of the end that has been left out. This leaves a large loop to wind from, if we have first made sure there is plenty of cord in the whipping. Then wind the remainder of the whipping over this end last put in. A large loop is needed because the winding puts many twists in the cord. Fig. 3 shows this part of the work nearly completed.

Continue the winding until the necessary number of turns have been made, leaving the two ends projecting from the middle of the whipping. Next take hold of the end which was last put in and draw the loop down tight. A strain on both ends tightens the whole, as shown in Fig. 4.

When both ends are pulled taut, tie in a square or reef knot. This is shown in Fig. 5. The accompanying photographs have been made with a heavy rope and a large braided line for a whipping. This has been done to show how the turns should be laid and to make everything large enough to allow the details to be easily followed. The knot which finishes the whipping is so large in Fig. 5 that it cannot be pushed into the score and hidden, as it should be. In Fig. 6, however, we have an actual whipping in which the knot is entirely out of sight. This whipping is made with corset lace and gives an idea of the proper finish.

In making a whipping on a smaller rope, such as would be used as a painter on a small tender or on the running rigging of a boat up to 24 or 25 feet waterline, it will be found more convenient to use sail twine and a needle. First take a stitch through the center of the rope about a couple of inches from the end, not drawing the twine quite through. Now wind the twine over this loose end, working towards the end of the rope and taking a stitch through the rope after every four or five turns. After making a whipping of the desired number of turns another stitch should be taken through the center of the rope and the end tucked into one of the scores under the turns of the whipping. These whippings can be put on very quickly and are impossible to pull out.

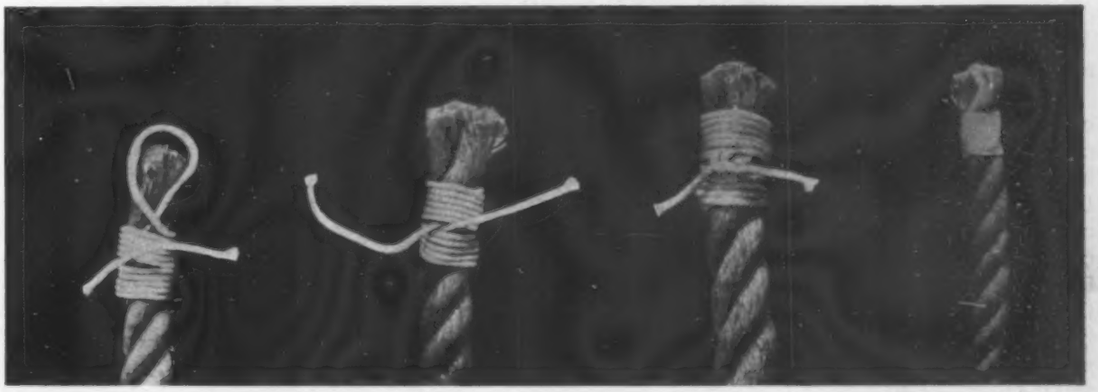


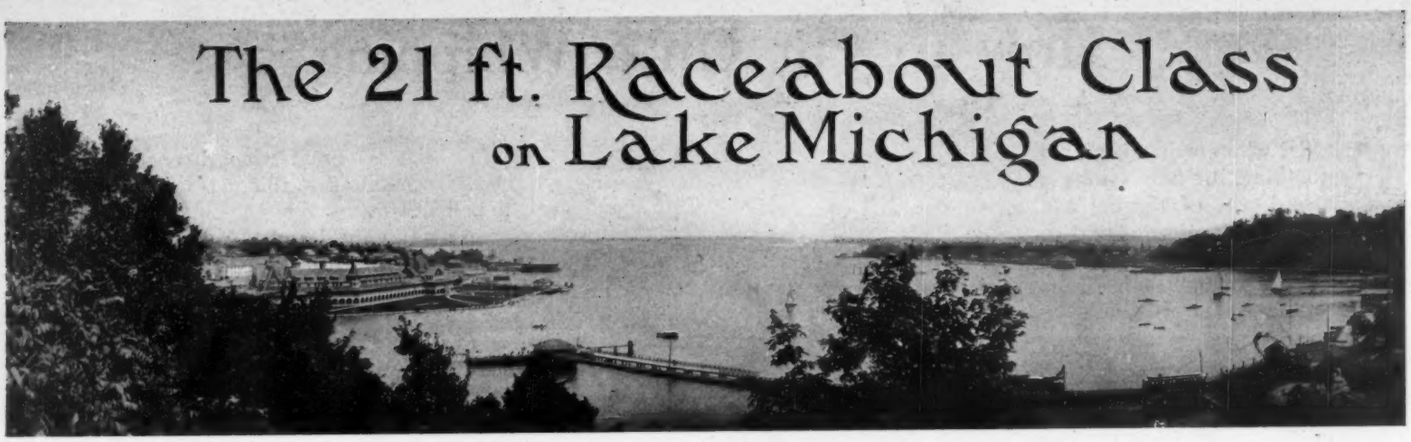
Fig. 3.—Whipping finished to to the last turn.

Fig. 4.—Both ends pulled tight. Loop drawn down hard ready for last operation.

Fig. 5.—Ends tied together in a square knot.

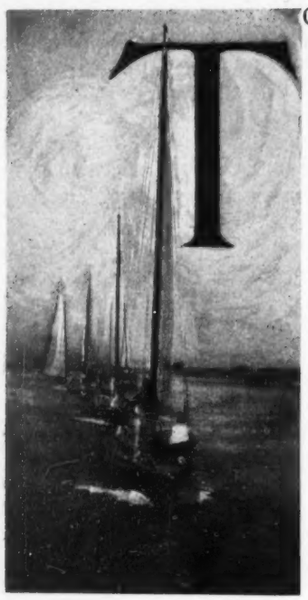
Fig. 6.—The whipping finished. More turns should be put on when the end is to be much handled.

The 21 ft. Raceabout Class on Lake Michigan



MACATAWA BAY. CLUB HOUSE IN THE DISTANCE AT RIGHT.

By FREDERIC L. BAXTER



TOWING IN AFTER THE REGATTA.

TO the Milwaukee Yacht Club belongs the credit of introducing the raceabout class on fresh water, one of the members of this organization persuading the Lake Michigan Yachting Association to adopt this type after much heated argument. This was, I think, in 1899, when Cock Robin, the first raceabout on the Lakes, was built. Other boats followed, some being imported from the East, while others were of local construction, until a fleet of six was collected, including, besides the first member of the class, Vandal, Vagabond, Viking, Freebooter and Badger II. Races were held throughout each season over a triangular course on Lake Michigan, a great deal of interest being added to the class by the gift of a handsome trophy, the Pfister Cup, which was sailed for every Fourth of July in a regatta open to all raceabouts on the Lakes.

The only outside contender for this prize, Colleen, of the Chicago Yacht Club, won it two successive seasons, and gave promise of securing the cup permanently the third time, until she was beaten in 1903 by Badger II, a Crowninshield craft brought from the East for the occasion. In 1904 Colleen was purchased by a member of the Macatawa Bay Yacht Club, and, after a stormy crossing of Lake Michigan, won the Pfister Cup permanently by beating the Milwaukee fleet. The loss of the cup seemed to affect the interest in the class, many of the Milwaukee Yacht Club members turning their attention to scow racing on the inland lakes near the city, and, as a result, several of the raceabouts were sold and the fleet scattered.

In 1904 the Macatawa Bay Yacht Club, on the east shore of Lake Michigan, desiring a suitable class for racing and day sailing, adopted the raceabout as the best type for their waters. Colleen, the recent acquisition from the Chicago Yacht Club, a Purdon design built by Stearns & McKay, at Marblehead, was the only boat conforming entirely to the restrictions, although Snipe, designed and built under the supervision of her owners, followed them, except in being of heavier construction. Commodore A. W. Hompe had also designed Elvira and Madcap, both boats being constructed by local builders. They were of the proper size, and had the 600 feet of sail required for raceabouts, but carried less ballast than the restrictions called for. These two were admitted to the class as exceptions, although it was expected that their lighter weight would give them an advantage. This did not prove to be the case, except when reaching in a smooth sea, so the four were very evenly matched. Zeta, the fifth member of the fleet, was somewhat handicapped by a shorter length and slightly smaller sail area. A series of races for the season was inaugurated, the winner to be decided by points, and the championship was won by Colleen.

In 1905 Hobo, one of the Atlantic Yacht Club one-design raceabouts, was purchased by A. W. Hompe. She proved very fast in light weather and, sailed consistently by her owner, carried off the season's cup. That year 20-mile cruising races to and from the Spring Lake Yacht Club regattas were made a part of the season's series and added interest and variety to the racing over the regular triangular course outside the harbor at Macatawa. One of these cruises was sailed in a howling northwester with all sail and spinnakers set, the first five boats finishing within two minutes of each other, with only a few feet separating the contenders for second place. As they jibed over at the finish with spinnakers and ballooners still up, the main sheet man on one of them went overboard in the excitement. Notwithstanding that all but one of the boats broke their spinnaker poles, the average time for the twenty miles was two hours and a half—pretty good speed, considering the sea that was running.

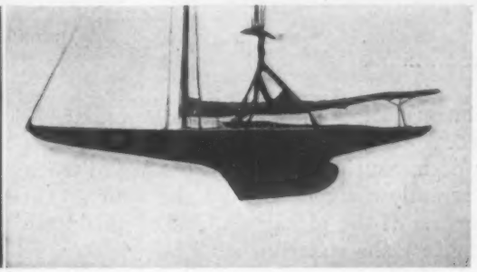
The following year R. W. Irwin sent East for the Nora, a Crane-designed boat with the reputation of being able to beat any of the older boats in the class. Re-named San-Dab, her performance was watched with great interest, as she was a very different type

RUNNING UP THE CHANNEL AT MACATAWA AFTER THE RACE.

RAVEN III (EX. TARTAN).

from the other boats, and it was a question as to how much of a handicap her full bow and more scow-like form would be in the short, choppy seas so common on Lake Michigan. The earlier part of the season it looked as if the doubting ones were right; but later her owner learned his boat, and, with proper tuning up, she won the Miller Cup in September. This was a series of three races for a fine trophy given by Commodore D. C. Miller for competition between all raceabouts on the Lakes, to become the property of any boat winning it three times. Hobo again won the season's championship this year.

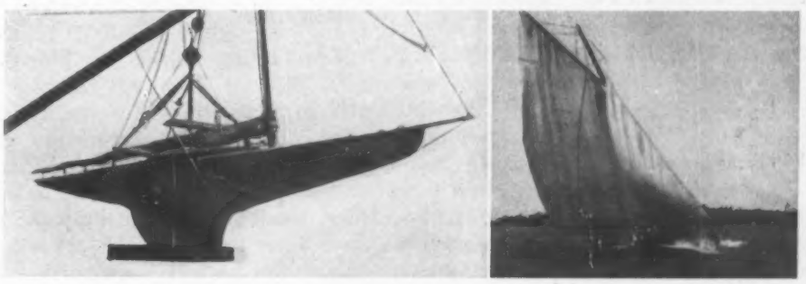
SAN DAB (EX. NORA).



SAN DAB BEING DROPPED IN AFTER POLISHING UP.

In 1907 the racing languished for several reasons. Madcap had been totally destroyed in a gale the fall before, Colleen was not entered, and Hobo sailed only a few races. San-Dab won the championship and the Miller Cup series.

In the spring of 1908 Mr. Chas. Scates, of the Macatawa and Columbia Yacht Clubs, bought the well-known raceabout Tartan and brought her to Macatawa, rechristening her Raven III. From the Eastern record of this boat, it was expected that she would give San-Dab close racing, if she did not beat her. Elvira not being raced that year, it was nip and tuck between Raven III, San-Dab, Colleen and Hobo throughout the season, with many hair-raising finishes of seconds only. San-Dab had hard luck in the series, losing one race by a breakdown and one by overstanding a mark. Colleen won both races of the Lake Michigan Yachting Association regatta, held at Macatawa, the first in a 30-mile blow and the second in a light wind, beating flat all the other classes on both days—big cruisers and racers alike. These races gave another convincing proof of the speed of the raceabouts compared to the other boats, among which were many fast craft with several times the sail area of the little racers. In the first day's blow they proved their weatherly qualities by carrying all sail in a wind in which four big cruisers broke down, Colleen and Raven III finishing ahead of the entire fleet, some of which had started five minutes before them. In the second event the raceabouts were again well to the front.



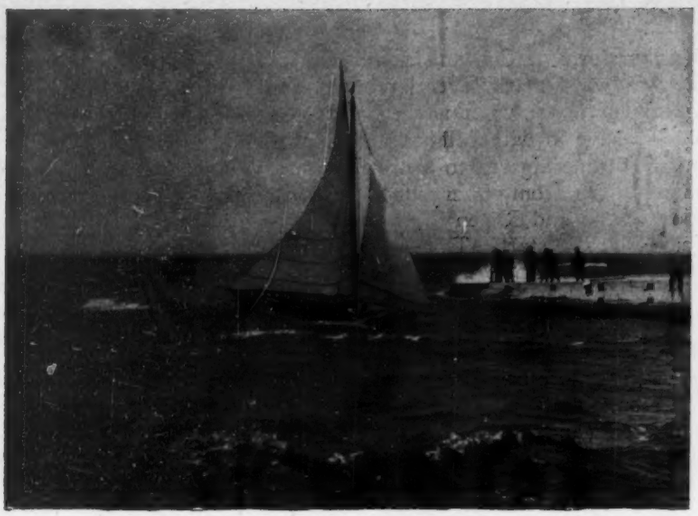
RACEABOUT COLLEEN, MACATAWA BAY YACHT CLUB.

Raven III won the Miller Cup after a hard fight, and up to the last race was one point ahead of Colleen for the season's championship and three points better than San-Dab. A gale was blowing the day of the last race, but all the boats carried full sail, San-Dab leading to the first mark on a broad reach, with Raven second, Colleen next and Hobo fourth. In the thrashing drive to windward against a living gale with steep-breaking seas, the finer form of Colleen showed to advantage, and she rounded the windward mark several minutes ahead, increasing her lead on the run home, winning the race and the season's cup. It was a wild drive in with full sail and spinnakers set, the boats leaping from one big sea to another, with a wide crescent of foam shooting out from either side as far aft as amidships. San-Dab took second and Raven third, but the latter was disqualified for fouling at the start. This tied the two for second place, and in the sail off San-Dab won.

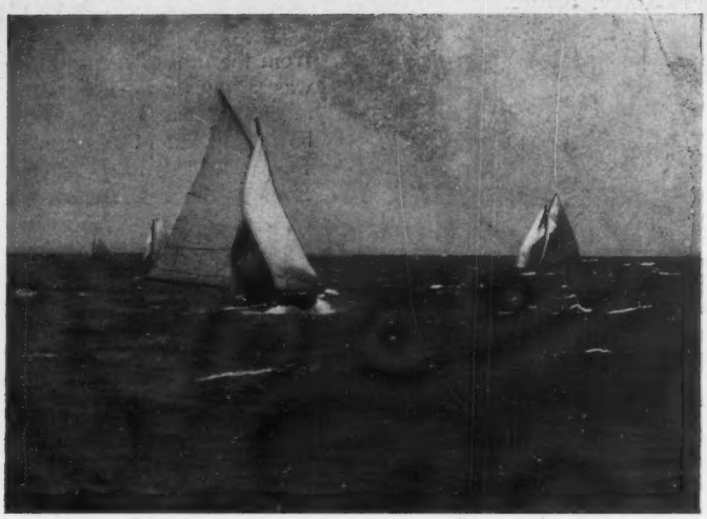
No new boats are in prospect for the coming season; but as three of the Milwaukee raceabouts are now owned in Chicago, more interest is being taken in the class there, and there is talk of several more being purchased. As the raceabouts are a much more suitable type for Lake Michigan, being faster, considering sail area (and often without time allowance), are cheaper to build and easier to handle than the overgrown scows developed under the Lipton 21-foot cabin class, it is to be hoped that when the Lake Michigan yachtsmen have grown tired of those flat-floored craft, as they have in Detroit, they will turn to the raceabout class.

At Macatawa the raceabouts have proved in every way suitable for Lake Michigan, and a peculiarity of the water—namely, big, steep seas in a blow, and short, bobbly ones in light weather—has served to favor the finer-lined older boats and place them on an even footing with the newer, fuller-bodied ones. Indeed, it is a question if anything approaching the scow form is not handicapped in all-around work; in other words, the better sea boat is the faster one. Racing is so close that seamanship and tuning up are large factors in winning. The wisdom of those who planned the raceabout restrictions, and their value in making close racing, while allowing large latitude in design, is shown in the winning of the 1908 championship by a nine-year-old boat. After the class had been chosen by the Macatawa Club, some additions were made to the restrictions and later adopted by the Lake Michigan Association at the request of the club. These changes related to water-tight cockpits and more suitable cabins, in order to make a more seaworthy boat. A clause was also added prohibiting anything approaching the scow form and any freakish departure from a wholesome type. Like a great many racing classes in the East, and especially on the Lakes, the raceabout has, however, suffered from too much legislation. Where racing is

HOBO, AN IMPORTATION FROM THE ATLANTIC COAST.



MADCAP FINISHING FIFTH IN 20-MILE CRUISING RACE. SHE WAS ONLY TWO MINUTES BEHIND THE WINNER.



FINISH OFF MACATAWA BAY OF THE 20-MILE CRUISING RACE. HOBO WINNING.

comparatively new and embryo yachtsmen know little of design, many amusing rules are promulgated.

In order to obviate the necessity of measuring the waterlines of raceabouts, the restrictions were recently changed by the Lake Michigan Association, against the protest of the Macatawa Club, to require that instead of *not over* 21 feet, the waterline shall be *not under* 20 feet, thus admitting a boat of any length waterline up to the over-all limit of 36 feet. The member who fathered this rule believed that the speed of a boat increased with a decreased waterline; in other words, the shorter the waterline the faster the boat! Since then the rules have again been changed and the waterline length limited to not over 23 feet. A boat has already been built of this latter length from designs by Crowninshield, which, early in the year, defeated Tartar, in Chicago, very badly. In 1909 there was no season racing, but San Dab won the Sir John Nutting Cup of the Chicago Yacht Club. San Dab also won the Miller Cup for the third time and secured permanent possession of the valuable trophy.

Some Elements of Seamanship

POINTS ON HANDLING A VESSEL IN HEAVY WEATHER—HEAVING TO AND RUNNING BEFORE IT

By CAPTAIN E. T. MORTON

GOOD seamanship is an art which all yachtsmen should study, not only in order to sail their craft well in a race, but to know how to handle them best in all kinds of weather. To ride out a heavy gale of wind at sea is an experience always to be remembered, and although one cannot master the elements, yet he can battle with them until their fury abates, and feel himself a victor in surviving the storm. Disaster should only occur through stress of weather or other unavoidable causes, and not through any carelessness or incapacity of those in charge.

The suggestions here offered are not designed for those whose training has already made them skillful seamen, although it may please these to see some of their own ideas endorsed. Such varying conditions exist in regard to weather, vessel's courses, proximity of land, etc., that it is impossible to lay down any fixed rules for all cases. However, when a gale of wind is encountered at sea, the master should know beforehand just what he intends to do to put his vessel in a condition to weather it, and be able to act promptly.

In an approaching gale, when the wind and sea have increased so that the spars and hull are becoming severely strained under close-reefed sails, it is time to heave-to until the weather improves. In the case of a schooner, if the wind is so that the vessel can lay her course, or near to it, take in the mainsail and lay to under the close-reefed foresail and reefed forestaysail. Put the wheel hard down and lash it there, to keep her head up to the sea. If the gale increases in force, take in forestaysail and right the wheel a little, if necessary. When the storm has gained such force as to put the vessel in peril, bend the storm-trysail on the mainmast, and, when ready to hoist, take in foresail, and then set the trysail. The wheel should now be put hard up and lashed again. The trysail will tend to keep the vessel's head up to the sea and cause her to drift off to leeward faster, making a broad wake to windward, which helps prevent the sea from breaking on board. This is the safest sail to lie under, the chief objection being that the vessel is unmanageable with her wheel while under this sail alone. If on the starboard tack, she would have the right of way; but if on the port tack, she may be obliged to keep off to avoid a collision with some other vessel hove-to on the starboard tack. In that case, it would be necessary to hoist the forestaysail or storm-jib, in order to pay her head off and gather steerage-way.

In a yawl-rigged vessel the mainsail, even when close-reefed, is too large a sail to carry in heavy weather unless steering a course. If vessel is lying near her course, she may be hove-to under the mizzen and storm-jib, taking in jib later, if it becomes necessary. Or a storm-trysail may be bent on the mainmast if that mast is not stepped too far forward, as is sometimes the case in vessels of this rig. In a severe gale, it is best to show the smallest sail possible to keep her head bowing the sea. For this purpose a small piece of strong canvas will serve, lashed low down from the mizzen mast to the boom. It is advisable to be provided with such a weather-cloth, as safety may depend upon its use. One sea often does all the damage that a vessel suffers during a gale. It is well known that three large waves usually follow each other, being then succeeded by waves of a lesser height. Some say that every ninth wave is the highest, while others contend it is the tenth; but however this may be, it is well

to wait until the three heavy seas have passed before going forward or aft over the deck.

More difference of opinion exists as to the best manner of running before a gale than about lying-to. Some contend that all possible sail must be carried in order to run away from the sea; others that the less sail carried the better a vessel will run. This depends a great deal upon the build of a vessel. On a light vessel with sharp lines, it is best to carry more sail, as with increased speed it gives her more time to rise as a heavy sea overtakes her; but a vessel could never sail fast enough to prevent the seas overtaking her. On a full-built vessel with a heavy stern, less sail may be carried to advantage, as she will rise more readily to the sea, owing to her full shape, and also by reason of being free from the impulse of her sails.

It is always necessary to run under the forward sails without any sail on the main or mizzen. When running under close-reefed foresail, always have forestaysail or storm-jib set, to keep her head off before the wind. The danger in running is in allowing the vessel to broach to, and the head sail will assist in keeping her head of. Safety in this case lies in skillful steering, taking care not to jibe the foresail nor yaw to windward. During sudden shifts of wind it is often necessary to keep directly before the sea rather than before the wind.

In laying to, of course, keep on whichever tack the vessel will best head up to the sea. Ordinarily, the wind veers from N. E. to S. E., thence to S. W. and to N. W., or, as they say, "with the sun." In this case, it is best to heave-to on the starboard tack, so that, as the wind gradually veers, the vessel will luff up and head the old sea. However, in many of our heavy northeasterly storms, instead of the wind veering, it often backens to the northward, blowing out in a northerly gale and diminishing in force. In this case, it would be proper to heave-to on the port tack, as, with a northerly wind, the vessel would hold her head up to the old N. E. sea.

A good idea of what change to expect can be formed by carefully watching the barometer. When an easterly gale begins with a high barometer, the barometer will fall as the wind increases, and the wind will usually shift to the southward and westward, the glass falling rapidly just before any sudden shift of wind takes place. On the other hand, when the glass stands about 29.90 during a northeasterly gale, the wind will probably backen to the north point and blow itself out without any perceptible change in the barometer.

On our coast, a S. E. gale, ordinarily, does not blow heavy over twelve hours, and is usually most severe in the night-time. A N. E. gale may blow strong for several days, moderating at times and again increasing in force before any change in direction occurs. While easterly gales commence with a moderate wind, increasing in force during a series of squalls, N. W. gales often strike "butt-end first," blowing the hardest at the outset, warning of which is given beforehand by the barometer. When the barometer falls extremely low and remains there, strong gales may be expected from west to W. N. W., lasting for several days, while in those cases where the glass falls rapidly and immediately commences to rise again, a strong N. W. gale may be expected, of shorter duration.

If caught on a lee shore during a gale and it is found impossible to keep clear, do not sag broadside into the surf, but rather put up the helm and run dead before the wind with all possible sail set, to force the vessel high up on the beach. Many vessels and lives have been lost by anchoring just outside the breakers. The anchors hold the vessel in the heavy surf, where she pounds her bottom out and all hands perish. The vessel being doomed, try to save the lives of those on board; and the only chance, although it may be a desperate one, is to run directly for the beach. In trying to get ashore in a boat propelled by oars, the three heavy seas should be allowed to pass before entering the breakers; then pull in as rapidly as possible. The appearance of the surf is very deceptive when approaching from off shore, even in good weather. The water may seem perfectly smooth close to the beach, when in reality there is a heavy surf rolling in. A boat may thus be caught unawares and suddenly capsized in a heavy roller without any previous warning.

When indications of bad weather are noticed, be energetic in preparing for it while there is time. Take in sail while it can be done with safety, no matter what any one else on board may think about it. If carried too long, the sail may be blown away in attempting to take it in, and, therefore, not available for use when good weather comes. Put extra lashings on anchors and all movables on deck. Plug hawsepipes and chainpipes in the deck, and put shutters in skylights and cabin windows. Also put preventer sheets on storm sails. It is always safe to do too much, but neglecting to do some small thing may prove disastrous.

An incident which once occurred on a West India bark may serve to illustrate this point. This vessel sailed from New York with a general cargo, and while crossing the Gulf Stream encountered an easterly gale, which caused her decks to be continually flooded with water. The gale was not unusually severe, yet the vessel appeared to be gradually settling deeper in the water. The pumps were sounded and several feet of water found in the hold. The pumps were kept constantly going, yet the water in the hold increased, and all hands spent the night in great anxiety. The next morning the second mate discovered that both chain pipes, which led from the main deck to the chain locker, were open. Every time the deck was flooded the water poured in torrents through these pipes into the hold. Needless to say, these pipes were quickly covered and the water pumped out, thereby saving the vessel.

There is still another important thing—never lose courage nor cease to make every effort, even though it may appear almost useless. A large, three-masted schooner loaded with coal was some distance off the Delaware Capes when she was overtaken by the great blizzard of March, 1888. The sails and some of the booms had been blown and washed away, with everything else movable about decks. Heavy seas were breaking aboard, and the situation was a desperate one; for, if left to wallow about in this manner, she would undoubtedly have foundered in a short time. The captain ordered the mate to get up a storm-trysail and bend it on the mizzen mast. But the mate and sailors seemed to have lost all courage, and made no effort to do anything. The sail was below decks, and it was impossible to open a hatch at such a time. The captain summoned several sailors and took them into the cabin, where he seized an axe and himself began hewing a passage through the nicely-varnished panels. Through the hole thus made the storm-trysail was drawn from the hold. As soon as this sail was set the vessel laid with her head up to the sea and rode out the storm in safety.

During a calm at sea the mind is filled with peaceful thoughts, and often occupied with matters of reflection; but when a gale comes on, the mind is rendered active by the elements—vigorous thoughts and impulses possess us and nerve us to action. Often during times of peril the danger is felt inwardly; but nothing is said about it, and true seamen work together with a will for the common safety. It is here that the men who serve in sailing vessels get an experience that can never be acquired in steam vessels. They are spurred to take violent bodily exercise, and to contrive various expedients to serve in cases of emergencies which frequently arise to test the ability which they possess.

A gale which blows steadily from one direction is not usually very dangerous, the high cross-seas caused by sudden shifts of wind causing more disasters. A yacht has the advantage over a merchant vessel in that she is always in perfect trim; and it is well to remember that "the winds and waves are always on the side of the ablest navigators."

To Prevent Freezing

WITH the tendency to keep motor boats in commission late in the season, and often through the winter, the problem of keeping the circulating system from freezing becomes a most important one. One of the simplest and most effective non-freezing solutions or mixtures is made by dissolving in a pail of water as much calcium chloride as the water will take up. This solution should not be used in the cooling system until diluted with an equal bulk of clear water. It will then stand a temperature as high as 20 degrees below zero without freezing.

Care should be exercised in seeing that the chemist has supplied slightly alkaline calcium chloride, and not chloride of lime, for the latter will do injury to the cooling system. Before the solution is poured in, it should be tested for acidity by immersing in it a piece of blue litmus paper, such as may be obtained from any druggist. If the paper turns red, there is acid present, which should be neutralized by the addition to the solution of a small amount of slacked lime. All loss from evaporation should be made up by the addition of water only.

Other substances may be used for non-freezing mixtures, such as glycerine, wood alcohol, certain kinds of oil and common salt. The latter, however, is about the least desirable, as it lowers the freezing point but slightly. Glycerine has the disadvantage of attacking rubber connections or packing in the pump if a large amount is used in the solution. A solution of half water and half glycerine will freeze at about 10 degrees below zero.

Wood alcohol has no effect whatever on any part of the cooling system, but evaporates easily, and has a low boiling point. When this solution is being used, the alcohol evaporates much faster than the water, and the solution tends to get weaker. A solution of 20 per cent. alcohol in 80 per cent. water will freeze at 5 degrees above zero, a 30 per cent. solution will freeze at 9 degrees below zero.

A solution of both glycerine and alcohol in water will practically combine the good qualities of both substances. The glycerine raises the boiling point of the solution considerably, while the amount used is not sufficient to affect any rubber with which it may come in contact. The alcohol and water will evaporate more rapidly than the glycerine, and these ingredients must be renewed oftener. A good way to mix the solution is to take equal parts of glycerine and wood alcohol and add water to the mixture in the proportions as given in the following table, according to the temperature to which the engine is to be subjected:

Alcohol Glycerine. Per Cent.	*Freezing Point.*
5	28 above zero.
10	24 above zero.
15	20 above zero.
20	15 above zero.
25	8 above zero.
30	5 below zero.
35	15 below zero.

Marine vs. Automobile Engines

There has been a good deal of discussion and some misapprehension regarding the relative quality of automobile engines as compared with marine engines. It seems to be the general opinion that marine engines are of a comparatively lower grade. It is true that higher grade materials are sometimes employed in automobile construction than in marine work, but as there is but little similarity in the two classes of service, there can be no comparisons made upon the same basis, except in respect to the racing boat, when speaking of marine service. Average quality, considering the class of service, is just as high in marine motors as in the automobile field.

Except in the racing boat, marine service does not require light weight, and, therefore, cheaper material in greater quantity takes the place of smaller parts made from specially high-quality materials used in automobiles. In point of fact, an automobile engine is invariably incapable of the hard service to which every marine engine is subjected. Automobile engines run at about one-quarter of their ultimate power fully 90 per cent. of the time, while a marine engine is almost invariably run at its fullest capacity whenever in operation. The incapability of automobile engines to negotiate marine service has been demonstrated time and again, and they prove to be short-lived affairs. They are not even satisfactory in racing boats. The engineering problem of producing engines of high power on light weight which will stand up to marine service is much more difficult than is the case in automobile work. The reason is, as above stated, that the marine engine must be so proportioned as to stand up under full power continually, where the automobile engine is rarely subjected to pulling loads up to the limit of its capacity.

The tendency towards a higher quality of material has been growing in all branches of the industry. Engines which now appear as relatively low in quality are invariably of higher grade, in point of material, construction and workmanship, than was the case with the majority of engines ten years ago. There have been several causes for this condition, the greatest of which has been the influence of the automobile industry. The remarkable demand for automobiles has called for the exercise of great ingenuity in the matters of the production of fine castings, forgings, etc. It has been through the demands of the automobile industry that machine tool manufacturers have produced special machinery for the manufacture of engines, etc., and this has played into the hands of the marine engine manufacturer, since many of the same machines are applicable to marine work.

Tightening Terminal Wires

As simple as it may seem, there is a right and a wrong way to tighten terminal wires. The right way is to twist the bare part of the wire or cable round the terminal from left to right in a clockwise direction and then tighten up the terminal nut. The reason for this is that, as the nuts have right-handed threads, the act of tightening up the nuts tends to pull the wire round more tightly. If the wire is twisted round in an anti-clockwise direction, tightening up the nut tends to uncoil the wire, and it will slip from under the nut while it is being tightened or when the vibration of the motor comes into play.

The Oil-Burning Steam Yacht Companero

A NOVEL CRUISER FOR THE PACIFIC COAST EMBODYING MANY NEW FEATURES

By STINSON JARVIS

PHINEAS BANNING, FOUNDER OF THE BANNING SHIPYARD, AND A MAN WHO DID MUCH TO DEVELOP SOUTHERN CALIFORNIA.

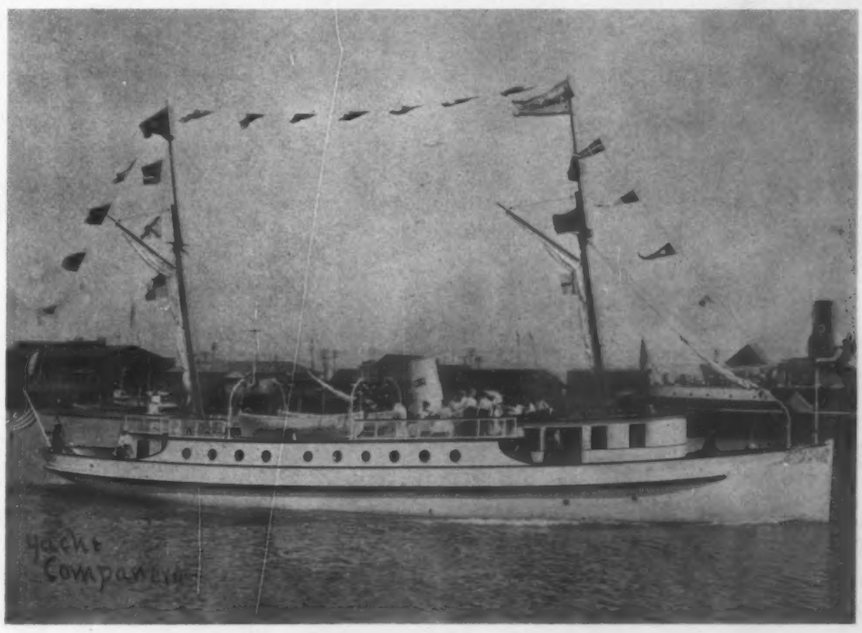
THE new steam yacht Companero, which has recently been built in Southern California, is the first yacht on the Pacific Coast to use oil as fuel for making steam, and the experiment has proved a great success in the way of cleanliness, ease of handling, economy, and also in gaining a release from those nose-biting fumes which proceed from coal. In the great steel tanks located in the lowest part of this vessel eighty barrels of the liquid fuel can be carried, which give her a wide radius for ocean cruising. By accommodating a few extra barrels of oil below decks she can make the 2,200-mile trip to Honolulu, and her auxiliary schooner rig is designed for use and not merely looks. Her masts are not of the knitting-needle variety, which give to so many steam yachts the look of toy-shop vessels. In other steel tanks placed over the keel she carries 2,500 gallons of fresh water.

Companero was produced by William Muller, superintendent and designer of the Banning Company, of Catalina and Los Angeles, whose shipyards are located at San Pedro, Southern California. Mr. Muller has built many fine yachts and ocean steamers, which have been very successful, millions of people having crossed the Pacific in his vessels without an accident. One of his latest yachts was a cruising yawl for a Mr. Gibson, and is a craft that has the merit of being able to keep the sea when the stormy petrel hides in the henhouse. Another of his recent vessels was the 100-foot waterline schooner Skidbladnir, whose cruise to the Gulf of California was recorded in the September number of this magazine. The construction of this latter vessel involved the difficult requirement of producing a peculiarly fast craft under sail and also under power, the aim being to travel at 14½ knots when driven by a 300 horse-power gasolene engine, and, when under canvas, to leave all records far astern. Speaking for himself, Mr. Muller records his faith in steam with no uncertain sound, and he has no doubts regarding the value of oil as a fuel for yachts.

"The price of coal is very uncertain," he said recently. "We have seen a New York ring jump the price to $40 a ton, and it is not a very large yacht that burns ten tons a day, which, at the price named, means $400 a day for fuel alone. At that time even the millionaires did not regard yachting as wholly pleasurable. It looks as if those who burn coal will do their yachting when the coal kings allow them; and, in any case, the price of it is bound to go up because of its increasing scarcity. But I cannot see any finish of the oil supply, and even within a radius of 20 miles from Los Angeles there are oil wells enough to supply half the world. With any ordinary care, its use on a yacht is absolutely clean; the decks have neither spots nor cinders, and my reason for always using steam power is that the horse-power of steam is not cayuse power, and the proofs produced by Companero are that a yacht of moderate size can use the cleanest, safest and most portable kind of fuel, and all the old troubles in regard to getting rid of the ashes may be regarded as belonging to the past."

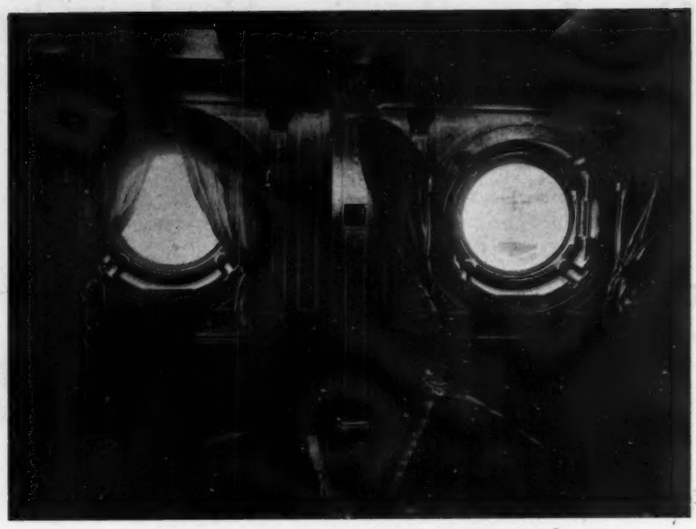
The Companero measures about 100 feet on the waterline, and her interior plan is a good deal like that of an English cutter of the same size, the companionways into the vestibule at the after end of the deckhouse being well forward, with a large ladies' cabin aft of the entrance, while the main saloon is in the usual place and extends the full width of the ship. By excellent designing, Mr. Muller has given the Companero the room of a three-decker, which, in fact, she is. On the lower deck are the engines, which are completely hidden from view except from the steel gallery on the port side. On the main deck are the staterooms, the main saloon, etc., while above these is the third, or upper, deck, which is, perhaps, 60 feet long, and is fitted with cushioned lounges and provided with easy chairs. From this upper deck the sails are handled. The skylights and other fittings here are of teak, while two large metallic lifeboats swing on the davits. An awning can be spread over the whole of this deck. The forward part forms the bridge, and here is located the brass wheel, binnacle and signaling apparatus connecting with the engine room.

On the forward main deck are teak bitts, patent windlass and pumps, with the fore scuttle leading down to the rooms of the mate and stewards, the quarters for the crew and



100-FOOT STEAM YACHT COMPANERO, WHICH BURNS OIL FOR FUEL.

the stowage in the fore peak. The forward stateroom on the main deck is for the owner, who, although an amateur, holds a master's license, and is the only captain on the ship. His room and dressing-room are of black walnut, and are separated by a passage from a large guests' room, finished in mahogany. In both of these cabins a small handle located near the bed pulls out a folding electric light from the wall, so that one may comfortably enjoy the bad habit of reading in bed. These beds are all built as high as an old French four-poster, while underneath are rows of long drawers in which clothes may be laid at full length.



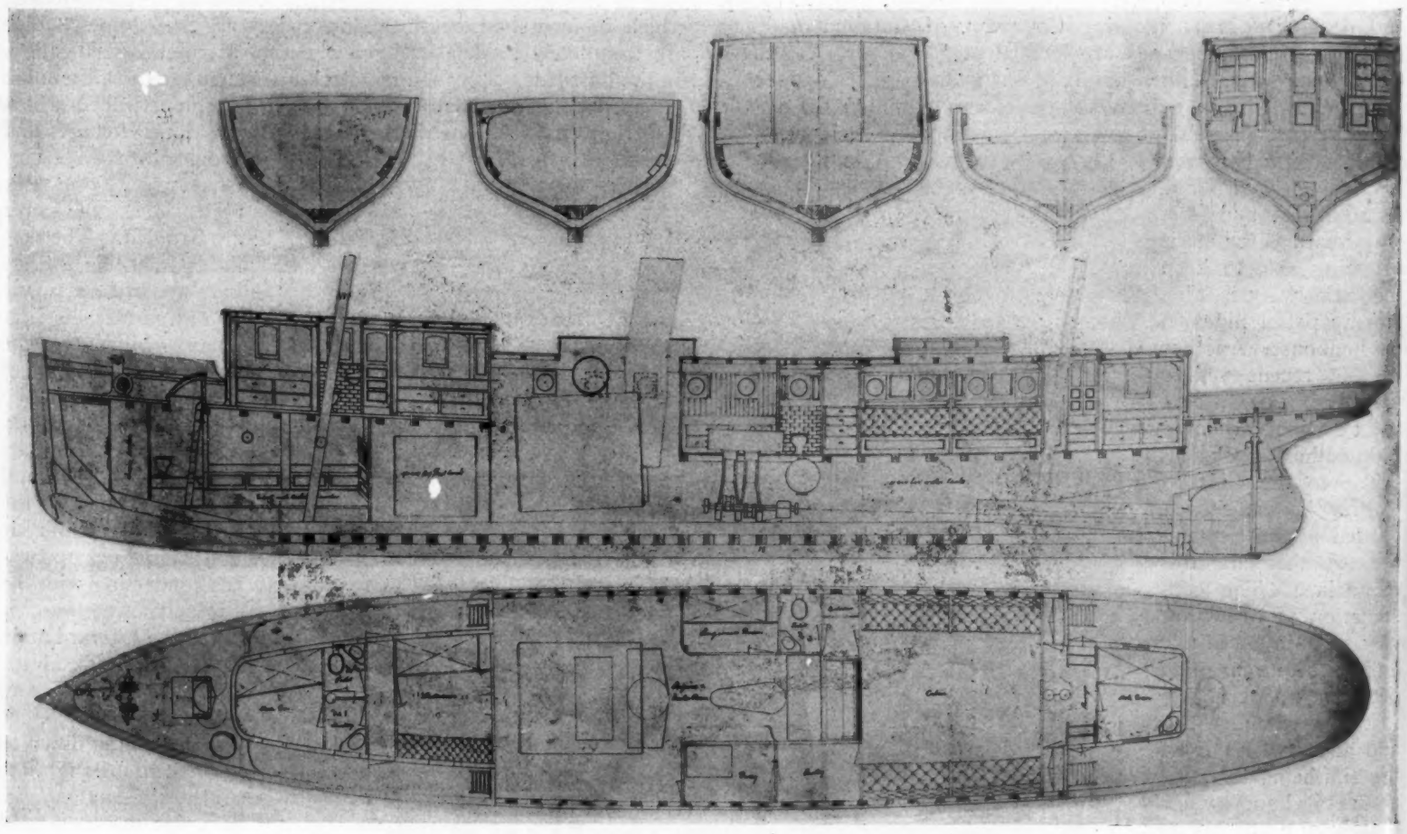
A DETAIL OF THE MAIN SALOON OF COMPANERO.

Passing over the bulkhead to the steel gallery of the engine room, one sees the Scotch marine boiler and looks down at the fore-and-aft compound engine, which is a special product of California. This was built by the United Engine Works, of Alameda, and produces its power in the smallest imaginable space. Further aft, and partly over the engine room, is the galley, with a six-hole range, burning coal, and a separate broiler attachment alongside. An electric fan in the engine room sucks out the heated air over the stove, instead of driving it out from inside the galley; and in the refrigerator-pantry, further aft, and, in fact, in every compartment of the boat, there is an electric fan.

The only thing Companero seems to need in the way of safety is a balloon, which might come in handy if Jove struck her with a thunderbolt; but otherwise she will not need it. All the portholes are specially made, to give a clear 17 inches across the plate-glass, which is three-quarters of an inch thick. They are thus made so that a man of ordinary size may squeeze through. It is a question whether the placing of portholes of this size should not be enforced by law, because of the many tragedies that may be laid to the smaller ones, such as the burning of the S. S. Saale. These lights screw shut with four lugs, and are provided with hinges of two parts, so that the opened lights will fold back flat and automatically lock against the interior walls. These are the largest outside portholes in the world, though the circular windows which surround the upper-deck saloon in Col. Oliver H. Payne's Aphrodite are bigger.

With a large force to assist, Mr. Muller built, or cast, every part of this craft, except the engines, etc.; but his work on the main saloon could only be done by himself or a Florentine expert in mosaics. All the pilasters, tables and panels of the walls, doors and ceilings have the mahogany mosaically trimmed with white holly. How any one man could do this without delaying the general construction and have the inlaid work conform to the always changing shape of the interior, is hard to imagine. Mr. Muller here had the benefit of a trade learned in Europe while a boy, and his

(Continued on page 178.)



Some New Boats for the Chicago 20-Foot Class

By CLAUDE GUISE

CADDIE.

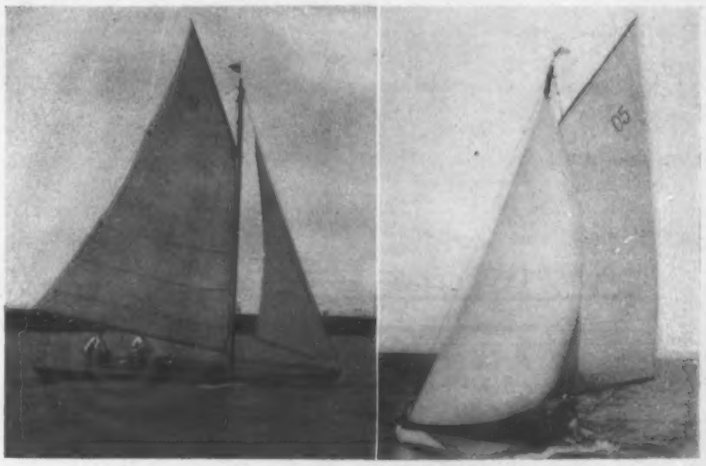
THE Chicago "Twenty-Footers" are a class of boats fostered by the Jackson Park Yacht Club, of Chicago, Ill. They are designed to fit no special class, being governed by the old Seawanhaka - Corinthian rule, of load waterline plus the square of the sail area divided by two, equaling the rating. Each boat is measured and time allowance figured according to this rating, the limit of the class being not over 20 feet rating measurement.

The season just closed was an interesting one, but the championship was somewhat indecisive, as the fastest boat in the class—Wenonah—failed to take part in it. Caddie, which won the title, is a fine, weatherly boat; but Wenonah can defeat her without trouble in any kind of a breeze. Wenonah won during the season of 1909 eight first prizes in the 20-foot class, one first in the 25-foot class—being a race of 42 miles from Chicago to Waukegon, Ill.—also, the time prize in the Michigan City race of 34 miles from twenty-one starters, and the Indiana Harbor race of 13 miles, with eleven starters.

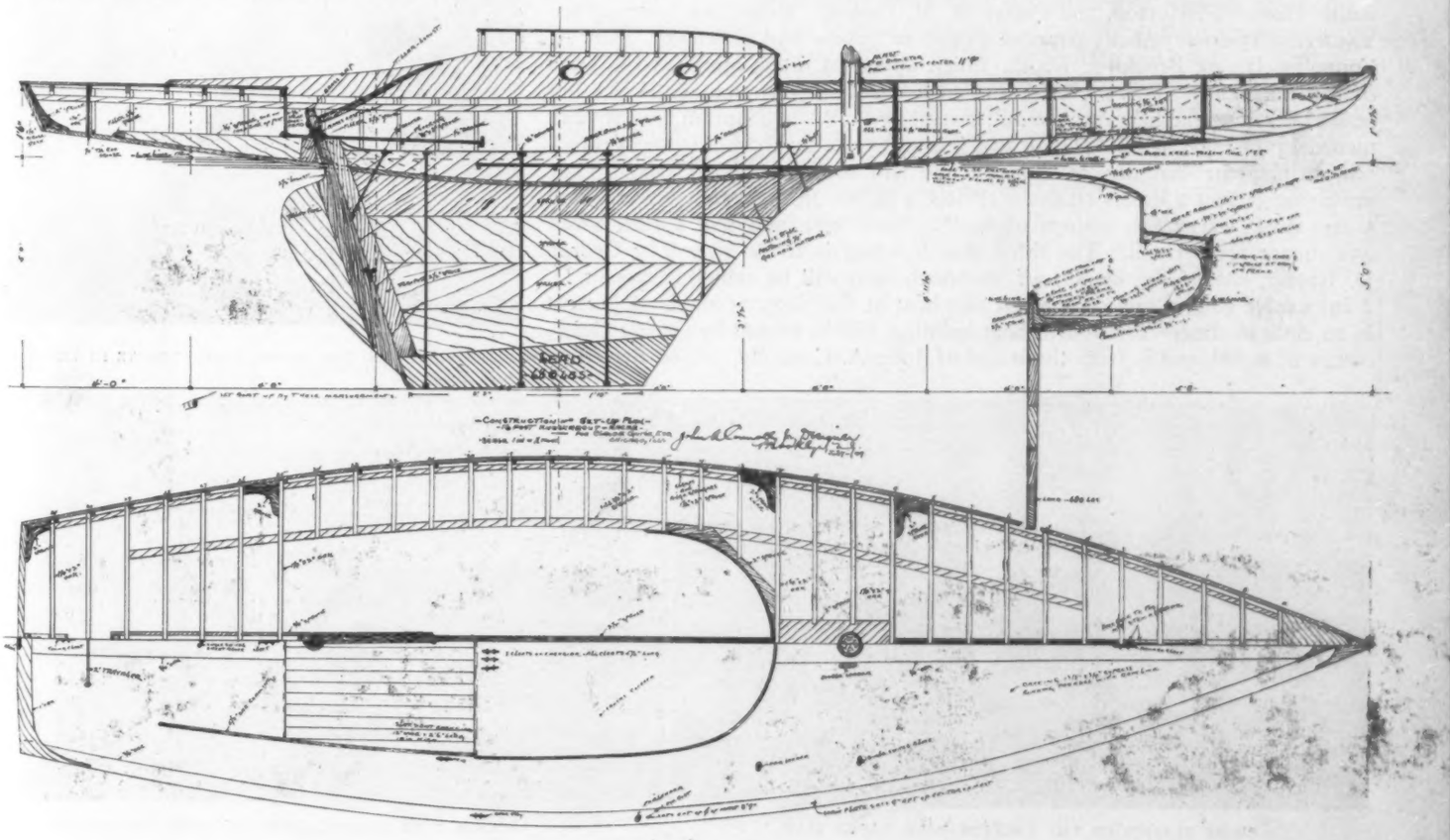
This class is being boomed this winter by the members of the Jackson Park Yacht Club, a thriving organization of the Windy City, whose fine club-house is situated on the lagoon in Jackson Park, one of the finest of the famous parks of Chicago. This lagoon is situated just inside of Lake Michigan, and is connected with it by a short waterway. This inside body of water is large, and affords an excellent harbor for a fleet of yachts and launches.

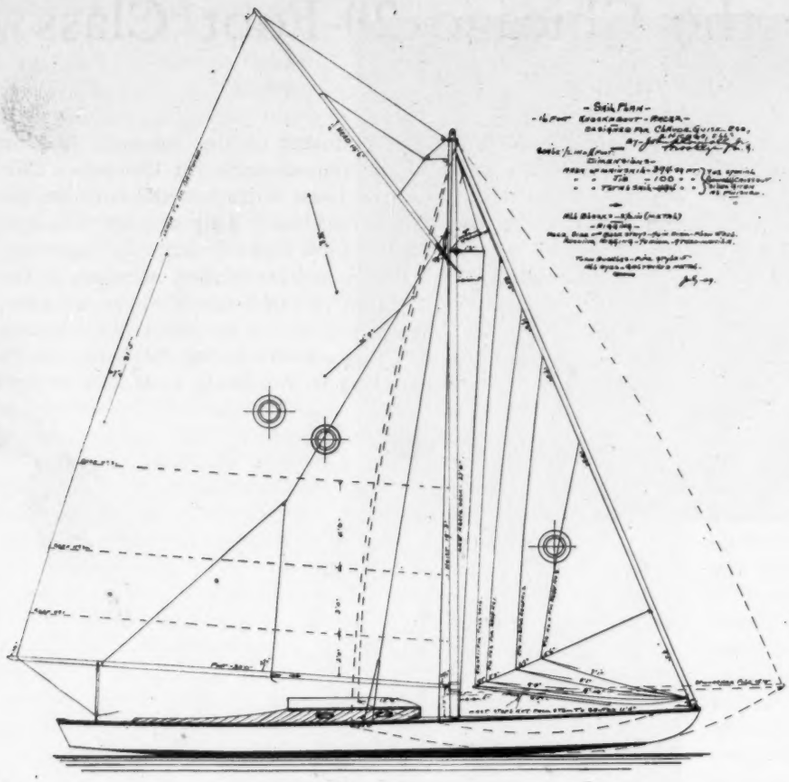
It is rumored that Dr. Holmes and Mr. Ruger, members of the club, are negotiating for the purchase of a fast Eastern 20-footer, which deal, if consummated, will create intense rivalry among the class, assuring an interesting season's racing for 1910.

The fastest boat of the class is Wenonah, a Mower center-



REBEL—TWO BOATS BUILT FROM YACHTING PLANS—NEPTUNE.





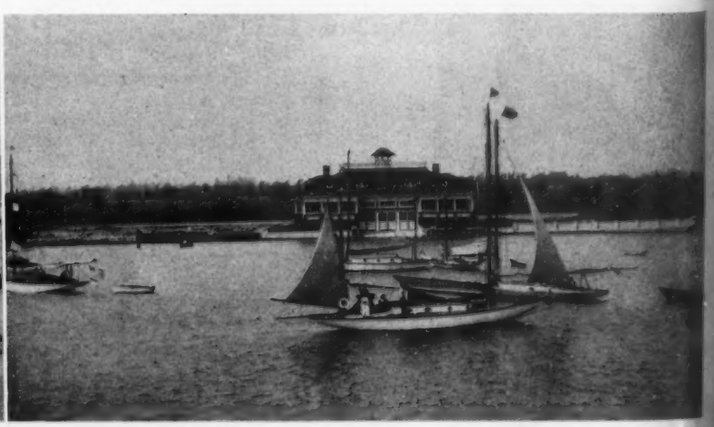
board 16-footer, which has been altered into a keel boat by the addition of a fin and a bulb of lead, giving her a draft of at least 5 feet. She also has a new sail area of about 432 square feet.

The present class consists of the following boats: Wenonah, Keefer Bros.; Rebel, Claude Guise; Neptune, Harry Tongren; Caddie, C. Lowe; Anita, Homer F. Horton, and Petrel, R. M. Parker. Rebel and Neptune are YACHTING 15-footers, built after the "How to" plans and article by John A. Connolly, Jr., of Brooklyn, N. Y., which appeared in the March, 1908, issue of this magazine. There will be four new boats out this summer, which are now under construction, viz.: Bandit, owned by D. W. Williamson, and Rascal, owned by Oscar Larson. These two boats are designed by Arthur Amundsen, an amateur designer, of Chicago, and will both rate about 19.90. They are about 31 feet 2 inches on deck, 17 feet 3 inches on the water, 8 feet beam, 5 feet draft, carry 800 pounds of lead in their keel, and will spread about 452 square feet of sail. The third boat building is to be owned by George D. Keefer, one of the owners of Wenonah, and will be called Wenonah II. I am unable to give any data about this boat at this date, as she is at present in an embryo state. The fourth boat building will be owned by Claude Guise, owner of Rebel, and is from the board of John A. Connolly, Jr., of Brooklyn, N. Y. The construction plan and sail plan appear with this article. She is a keel boat, 29 feet 8 inches on deck, 17 feet waterline, 8 feet beam, 5 feet draft, carrying 680 pounds of lead in her keel, and will spread 494 feet of sail. She will be known as Rebel II. The lines of this boat are something like the Bellport Bay one-design class, a very successful class of boats, sailing on Great South Bay, Long Island; but have been lengthened out on deck from 26 feet 4 inches to 29 feet 8 inches, and a keel added to a depth of 5 feet. The sail area has been increased to 494 square feet from 370 square feet carried by the Bellport Bay boats, the latter being centerboarders. These Bellport boats have proved their worth as a good, comfortable and seaworthy class, with an excellent turn of speed.

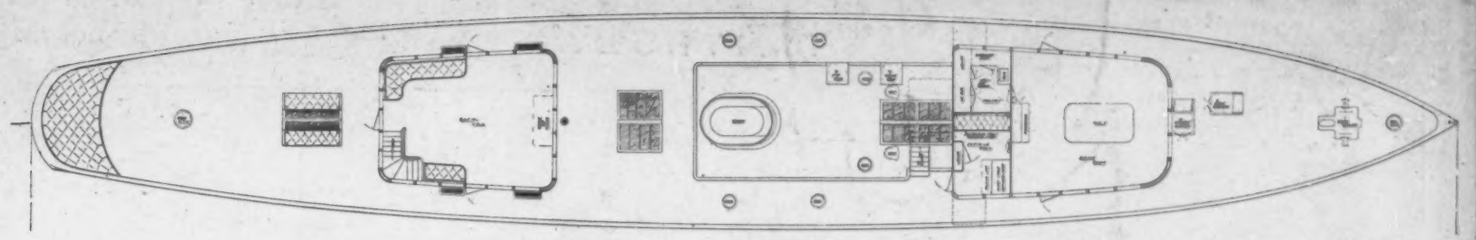
The Keefer brothers, owners of Wenonah and Wenonah II, have put up a handsome cup for this 20-foot class, and the prospects are bright for another trophy being donated in the near future.

WENONAH, ONE OF THE FASTEST BOATS IN THE CLASS.

SHORE STATION OF THE JACKSON PARK YACHT CLUB.



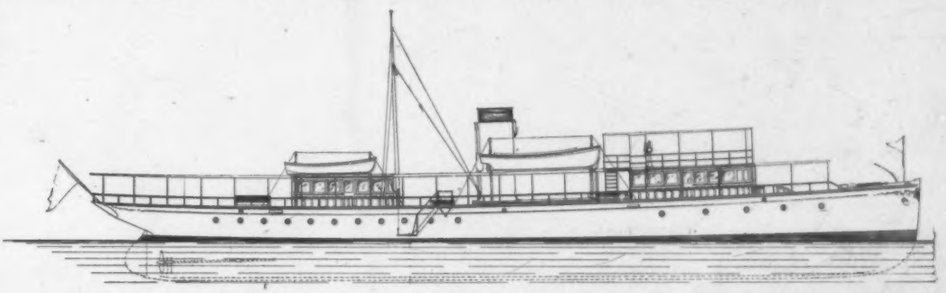
JACKSON PARK LAGOON, SHOWING YACHT ANCHORAGE.



145-Foot Twin-Screw Steam Yacht

THE new twin-screw steam yacht recently designed by the Gas Engine & Power Company and Chas. L. Seabury & Co. (Cons.), of Morris Heights, New York City, by whose courtesy we are enabled to reproduce the plans, is interesting from several points of view. Not only will it be possessed of considerable speed, the builders' guarantee being 16½ miles per hour, but it shows to a considerable extent the influence of the modern gasolene cruiser on the steam-powered type of craft. As a matter of fact, the plumb bow forward, canopy deck and single military mast give the yacht much the appearance of a gasolene cruiser with a dummy stack. Moreover, she is so arranged as to contain a liberal number of comfortable, good-sized staterooms. These staterooms, seven in number, will accommodate a party of eleven.

There are two deck houses, the forward one containing the dining-room, captain's room and butler's pantry, the latter being connected by a dumb waiter with the galley, directly underneath. The after deck house serves as a social hall and music room, and contains a stairway leading to the owner's and guests' quarters below.



A bridge deck, canopy-covered, occupies the entire top of the forward deck house, and from a point some feet forward of this house to the extreme stern the deck is covered by a canopy on removable stanchions.

Below deck, the space forward of the engine room is given up to galley, messroom, officers' and crew's quarters. The cabins of the mate, cooks, engineer and steward, respectively, open off from the officers' messroom, from the forward end of which a companionway leads to the forward deck. Forward of the messroom are the crew's quarters, with twelve pipe berths and clothes locker. Aft of the galley comes the engine room, in which are two "Seabury" triple-expansion steam engines of about 400 to 450 indicated horsepower each.

Aft of the engine space is located the fireroom, with Seabury water-tube boilers. Aft of this, again, and separated from it by a watertight bulkhead, are the owner's and guests' quarters. Descending, by a stairway, from the starboard side of the social hall, a lobby, finished inside with mahogany trimming, is entered. Directly off this lobby a bathroom, with all toilet appliances, opens. The passageway leading forward has a double stateroom on each side and ends at two doors, the one on the port side leading into a large double stateroom, while the door on the starboard side leads to the owner's room, which connects with the stateroom just mentioned by a sliding door. From each of these cabins doors lead into a large bathroom.

A passageway leading aft from the lobby has a single stateroom on each side, and ends at a large double stateroom running across the entire width of the boat. Each stateroom contains a bureau and a good-sized clothes locker, and sufficient room to actually allow the occupant of the cabin to move around with some degree of comfort.

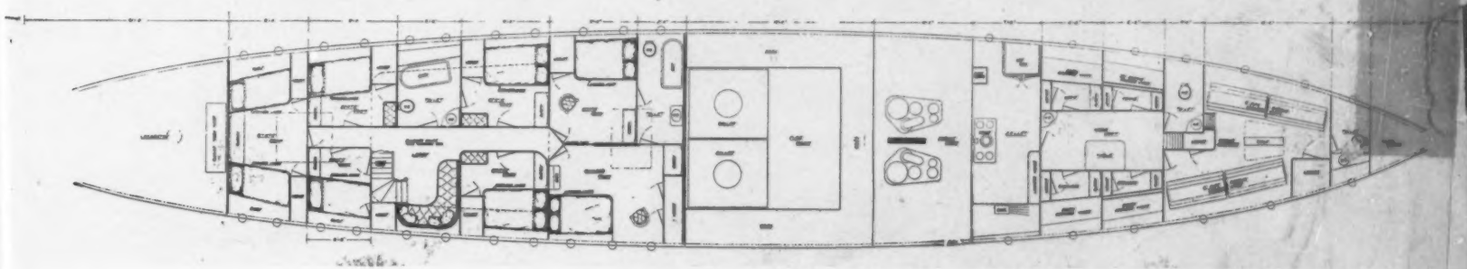
One large ventilating hatch is directly over the engine room, a second is over the two forward staterooms, and a third over the after passageway and the rear double stateroom. This last hatch is fitted with cushions, and serves as a deck seat. There are also two port lights in each stateroom.

The dimensions of the boat are as follows: Length over all, 145 feet; length load waterline, 132 feet; extreme beam, 22 feet; extreme draught, 7 feet.

The boat is handled from a bridge over the after end of the forward deckhouse, and here are located the wheel, binnacle and engine-room telegraph. She will carry three boats, one of them being a gasolene launch.

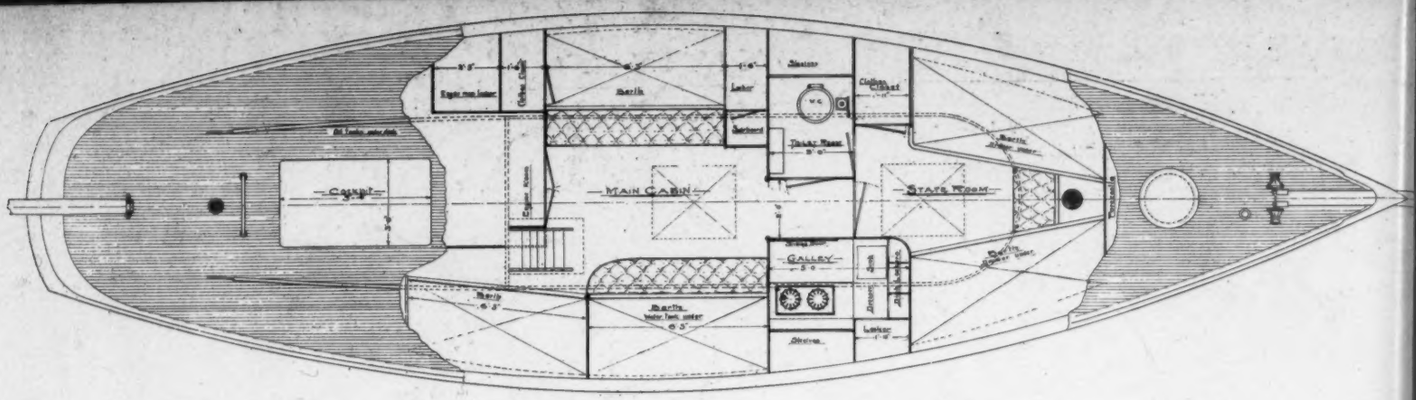
There is a liberal amount of deck room, which is not broken up too much by deckhouses and hatches, and she will be found a very comfortable and efficient cruiser, with enough speed to make her available for use in daily trips to the city from the summer home of the owner.

This yacht is a good deal of a departure from the accepted form of steam yacht in use in these waters; but, as far as we can judge of her form, she should prove a seaworthy craft, capable of going anywhere along the coast, and should be easily handled. Her stem is well turned and graceful, and she loses nothing in looks by the absence of the clipper bow and bowsprit seen in the conventional yacht of this character. The military mast is only for the mast-head light and signaling purposes.



"D'ye mind the days of the streamin' l ife lin
With the boardin' seas o'er the weath eepin'

ife lines, fore'n'aft,
eepin' the decks like a raft?"



A 36-Foot Waterline Auxiliary Yawl

THE auxiliary cruising yawl shown by the accompanying plans was designed by Charles D. Mower for Commodore Richard H. Alexander, of the Royal Vancouver Yacht Club, of Vancouver, British Columbia, and was intended for an able and comfortable boat for general cruising, with sufficient speed and sea-going ability to allow her to compete in ocean races, if occasion should arise. The order for the design was placed with Mr. Mower on account of the success of Minerva, a boat of his design of similar type and dimensions, owned by Mr. George Thomson, of Vancouver.

The cabin arrangement is rather a novel one, and was worked out by the designer to meet the special requirements of the owner. The forward stateroom is to be used as the ladies' cabin, and is arranged to give as much privacy as possible in a boat of this size. The location of the galley is unusual, but it is believed that it will prove a convenient and a satisfactory arrangement. The main cabin is large and commodious, and there is ample storage space, locker room, etc., to meet all demands of the owner and guests.

The construction is especially designed to give an unusually strong hull, and the best of materials is specified throughout. The rig is well proportioned, and the sail area is not excessive. Auxiliary power will consist of a kerosene engine of sufficient power to give a speed of 5 miles an hour.

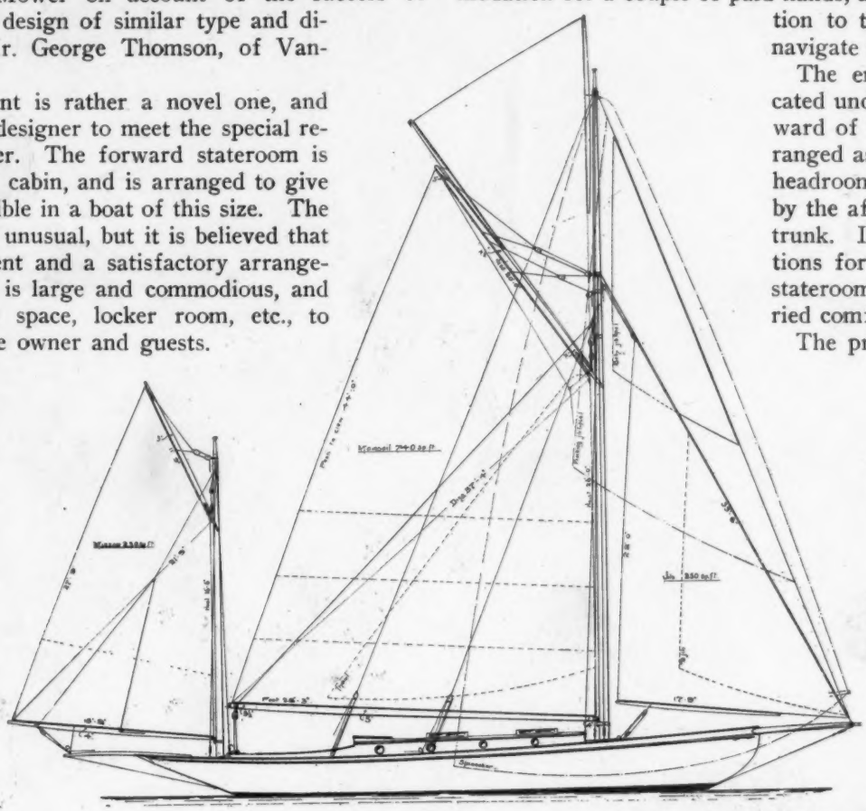
A companionway on the starboard side leads into the main cabin, in which are three berths and a couple of transoms. Forward of main cabin is a stateroom, with berths on each side and drawers underneath for stowage. At the after end of this cabin there is a good-sized clothes closet. Between main cabin and stateroom are located the toilet room and galley, on port and starboard sides, respectively.

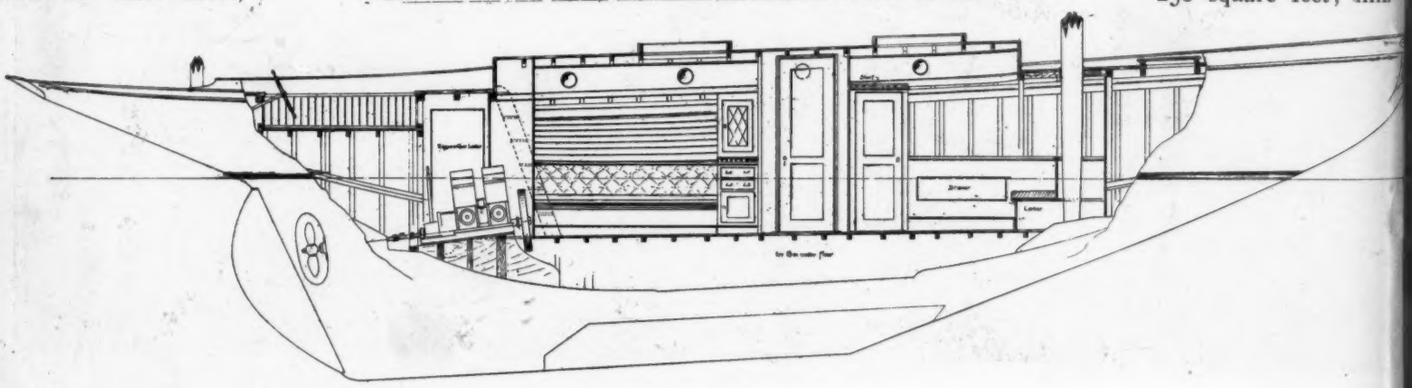
The forecastle is entered by a circular hatch, and has accommodation for a couple of paid hands, although one man, in addition to the owner, is sufficient to navigate the craft.

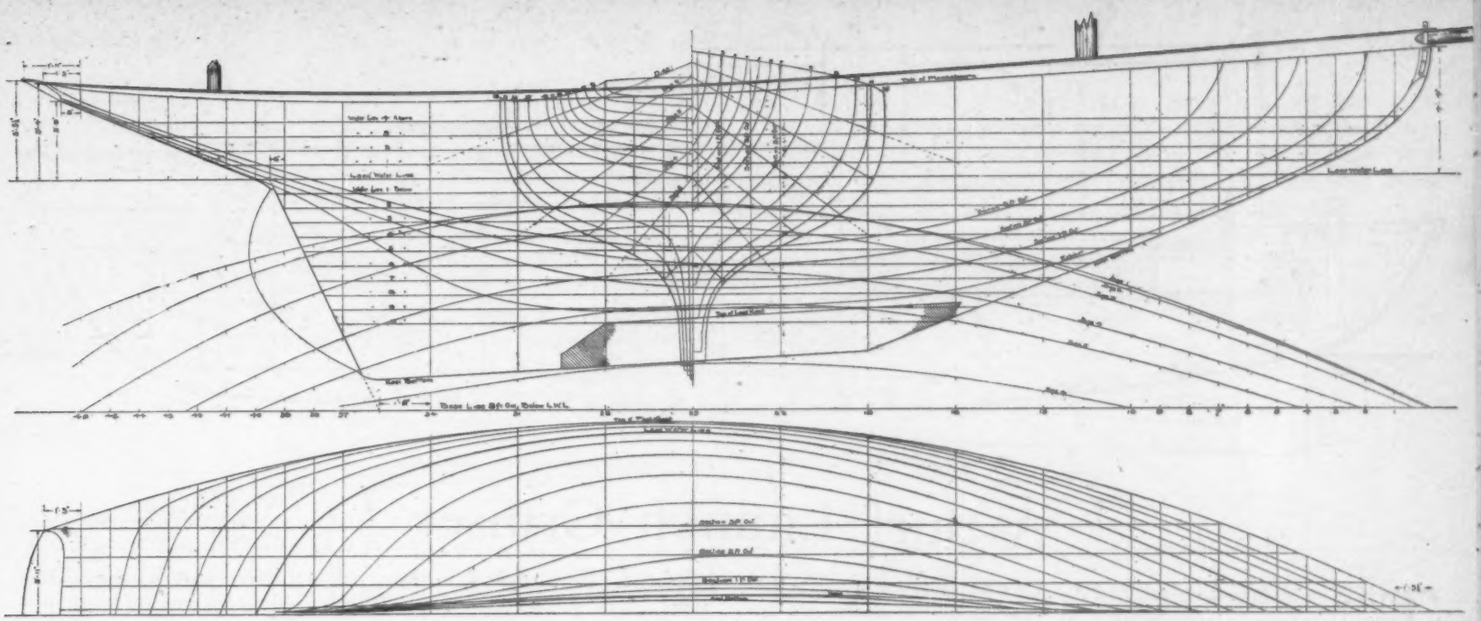
The engine room, which is located under the after deck just forward of the cockpit well, is so arranged as to give a fair amount of headroom in that portion covered by the after end of the main cabin trunk. In addition to accommodations for two people in the ladies' stateroom, three others can be carried comfortably in the main cabin.

The principal dimensions are:

Length over all, 48 feet 4 inches; length waterline, 35 feet 10 inches; overhang forward, 4 feet 6 inches; overhang aft, 8 feet; breadth, extreme, 13 feet 2 inches; breadth load waterline, 12 feet 6 inches; draught, extreme, 6 feet 11 inches; freeboard, bow, 4 feet 4 inches; stern, 3 feet 4 inches; least, 2 feet 8 inches; area mainsail, 740 square feet; jib, 250 square feet; miz-







zen, 230 square feet; total sail area, 1,220 square feet.

She is an able-looking boat in every respect, and capable of going anywhere if properly handled. For the Bermuda, or any other ocean race, she could hardly be improved upon.

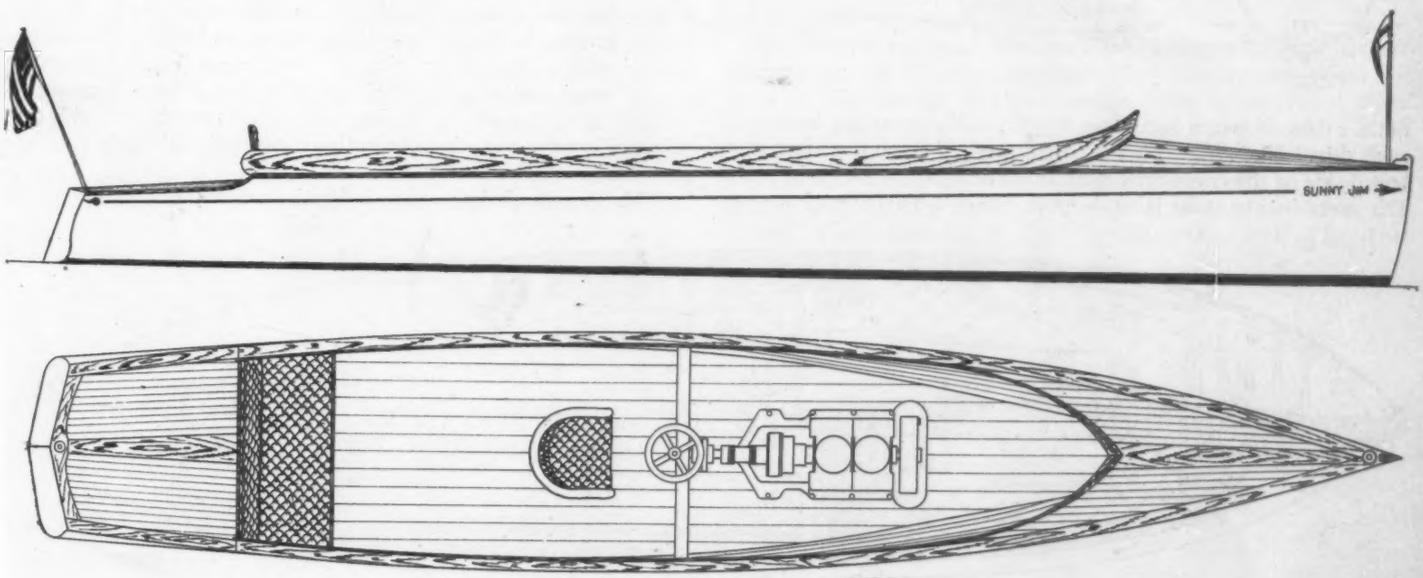
A Moderately Powered Speed Launch

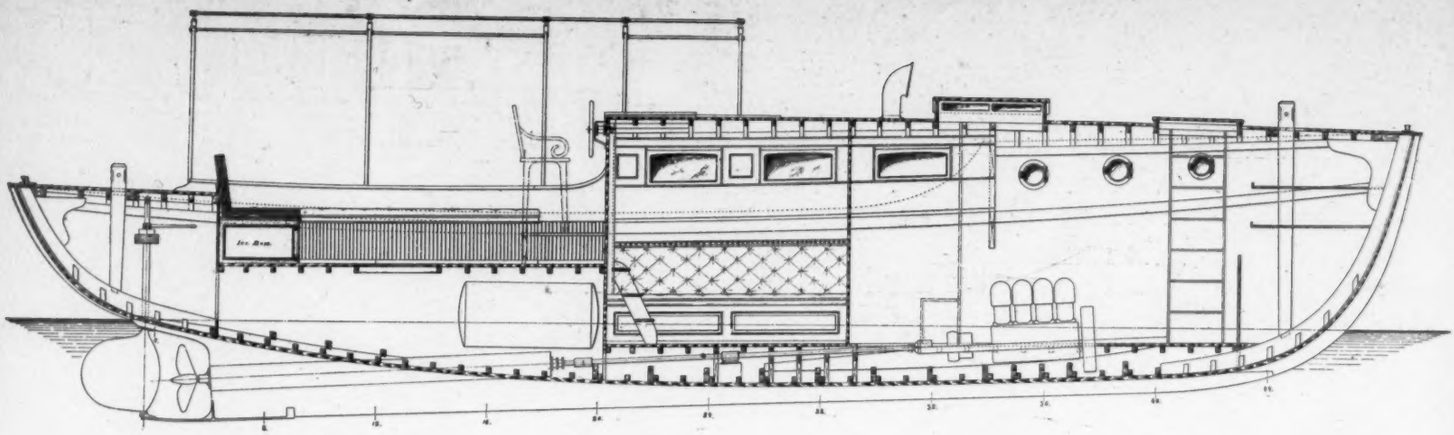
THE sheer and deck plans shown herewith are of a 23-foot boat, designed and built by the Camden Anchor-Rockland Machine Company, Camden, Maine, to fill a rapidly growing demand for a moderate-priced craft that will produce good speed with an engine of very moderate power. This boat is called the Sunny Jim, and was built by this firm for Dr. F. W. Jackson, for use at his summer home, at Jefferson, Maine.

The bow is almost plumb, and the stern is of the V type, with a decided tumble home. The coaming is quite high, and a forward deck of the turtle-back type ensures dryness. The dimensions and specifications are as follows: Length over all, 23 feet; beam, 4 feet; draft, 20 inches; planking, Southern cedar; frame, native Maine oak; ceiling, cypress; copper fastened throughout.

The power plant consists of one of the two-cylinder, 7-horsepower, three-port Knox standard motors, which develops 9 horsepower at a speed of 600 revolutions per minute and drives the boat between 14 and 15 miles—an extremely good showing for an engine of this type, particularly as the motor in question is not to be classed as a speed engine. This shows the results which may be obtained by building a boat to fit the motor, which was the method of procedure on the part of Sunny Jim's builders. Besides being more than satisfactory as regards speed, the little boat has proved itself very seaworthy in the choppy water which is characteristic of the lake on which she is used.

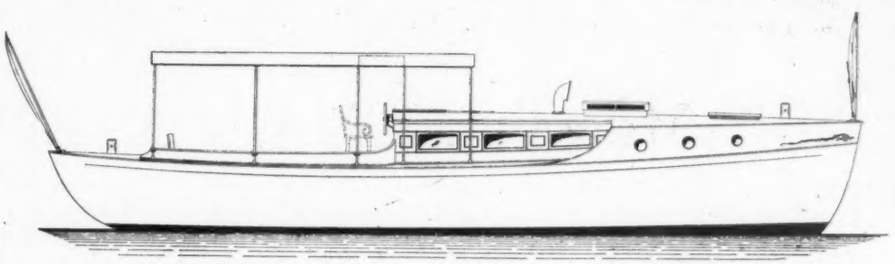
As will be noticed by reference to the plans, the engine is located forward of the 'midship bulkhead, with steering wheel and engine control so arranged as to be operated by one man. The entire cockpit is free and clear, with the exception of the steersman's chair and an athwartship lazy-back seat in the after end.



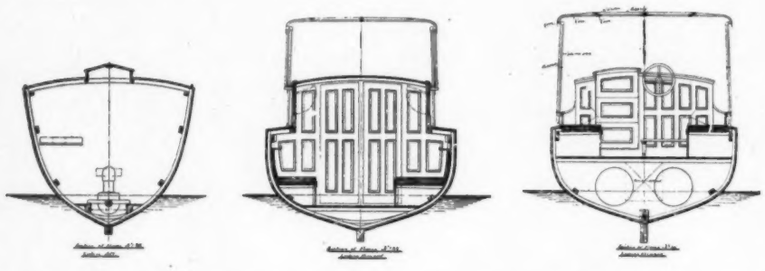


A Surf Launch Cruiser

THE new cruiser designed by Cox & Stevens for Alfred Mestre, of New York City, the plans of which we reproduce herewith, has a hull very similar to Sis II, the 40-footer, an illustration of which appeared in the October issue of YACHTING. She is, however, an altogether different type of boat, for while Sis has a hunting cabin of the trunk type, this craft is a combination of the raised deck and straight-sided trunk types.

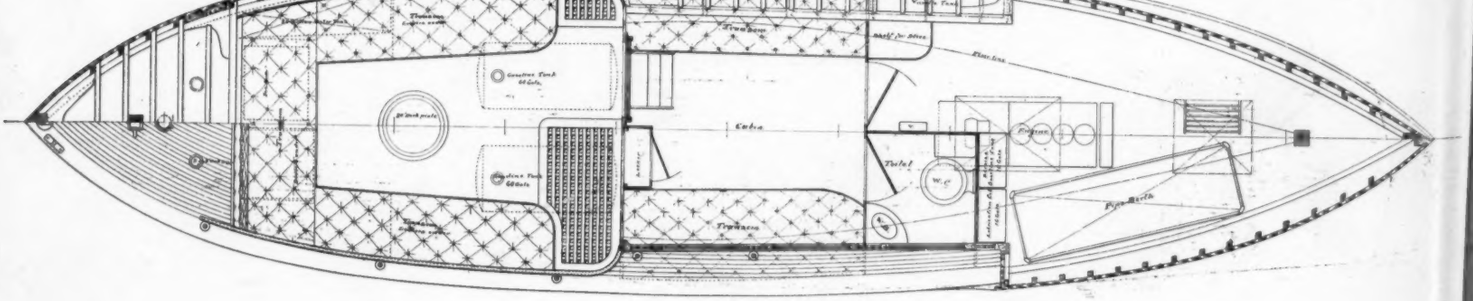


A notable feature of the new boat is the amount of space allowed for the engine room, which occupies considerably more than half of the cabin, and extends far enough aft to allow the engine, a 4-cylinder, 4-cycle, 5 x 6, to be placed far enough aft to obviate any undue pitching of the boat in a seaway. The engine room is 8 feet in length, and may be entered either by a door from the main cabin or through a deck hatch just aft of the samson post. It contains a pipe berth for a paid hand. Aft of the engine room comes the main cabin, 6 feet 6 inches in length, with extension berths on each side. The toilet room is partitioned off from the after starboard side of the engine room, and is entered from the main cabin. The space for the stove is on the port side of the after engine-room bulkhead. The cockpit is the most attractive part of the whole boat. It is 10 feet 6 inches in length, with transoms on each side and across the rear end, and lockers and drawers underneath give a liberal amount of storage space. An ice box is under the stern transom, and a 20-gallon fresh-water tank is snugly housed below the transom on the port side of the cockpit. Two gasolene tanks, of 60-gallon capacity each, are located under the forward end of the cockpit floor, and from these the fuel is pumped to the 10-gallon service tank, located in the engine room, which supplies the engine by gravity. A 20-inch deck plate in the cockpit floor gives access to the storage space underneath the cockpit not occupied by the tanks.



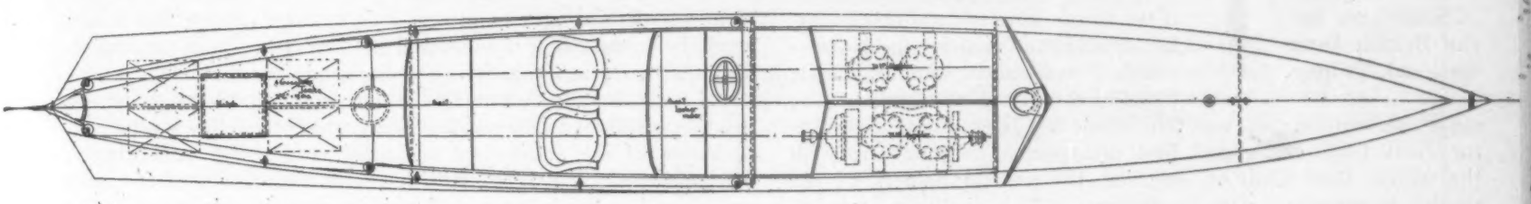
There are three 6-inch port lights and three oblong 21 inches by 9 inches glass windows in each side of the cabin, in addition to which a ventilating skylight over the engine and a ventilating cowl on the after cabin roof tend to make her cool and comfortable in the hottest weather. A raised grating in the starboard side of the cockpit, in combination with a high chair, gives the steersman a good view forward and a comfortable position for a long trick at the wheel. Heavy metal stanchions and canvas roof, with side curtains, allow the cockpit to be entirely covered and made weather-proof when desired.

This new craft has every indication of being a staunch, sea-



worthy boat, and the manner in which her cabin accommodations are divided will commend itself to those who have passed the stage of trying to crowd steam yacht accommodations into a moderate-sized cruising launch. Her dimensions are as follows: Length over all, 38 feet; length on load waterline, 32 feet 9 inches; beam, 8 feet 9 inches, and draught, 3 feet. She is handsomely but plainly finished, the trunk, cockpit coaming and covering board being of teak, the frame and keel of oak, and the planking of cedar. Her engine swings a 23-inch bronze propeller, with a pitch of 27 inches, and she is expected to make a speed of 11 miles, which is extremely fast for a boat of this type.

A craft of this type makes an ideal boat for one who desires a maximum amount of deck and cockpit room for day use with enough cabin accommodations for short cruises. She is of a size that will allow her to be handled without a paid hand, if desired, while at the same time there is room for such a hand if it is thought advisable to carry one. The unusual amount of space in her engine room is a feature that will be appreciated by every practical man who has had experience with engines housed in limited quarters.



A Fast 50-Foot Day Service Launch

THE 50-foot launch whose plans are shown herewith was built at Lawley's yard, South Boston, from designs by Tams, Lemoine & Crane, and under their supervision. There is a growing demand for large, high-speed boats of this type for day service, and Tarpon is a development of one of this firm's popular models.

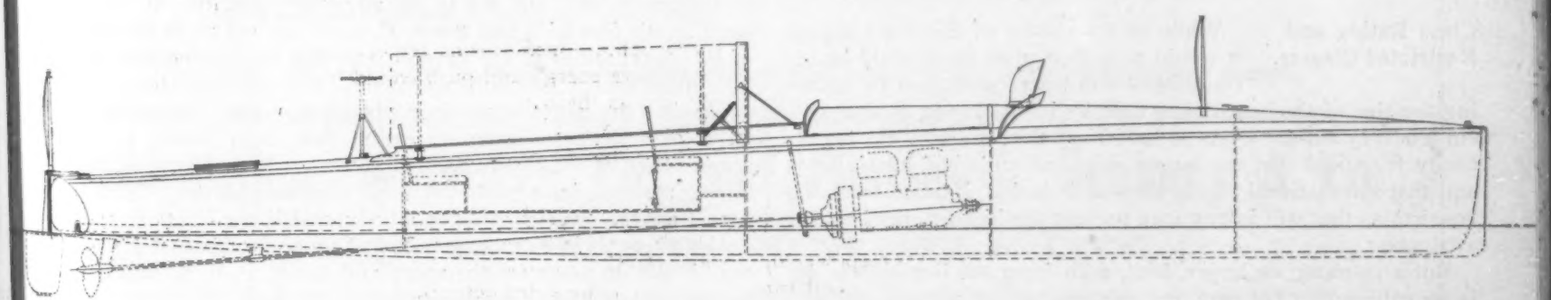
Her construction is of the best and, while in no sense heavy, is most substantial. The general dimensions are 50 feet over all, 6 feet 3 inches beam, 2 feet 6 inches draft. Her keel is of white oak in one length; stem of oak, crooked in one piece; frames of oak, steam-bent, in one piece from keel to deck, and planking is of mahogany. She is copper-fastened and has a mahogany deck. The motor foundations are of elm and extra heavy. She has a long turtle deck forward, with a watertight bulkhead in the bow, aft of which are the motors. In the engine space there is a seat on either side for the engineer. Directly aft of the motors is another watertight bulkhead. There are two cockpits, with a mahogany coaming about each. In the after, or owner's, cockpit, there are two mahogany athwartship seats, made removable, the rest of the floor space being used for chairs. At the forward end of this cockpit there is a wind shield built of mahogany, which is arranged with two glass sashes sliding past each other. There is also an awning fitted with Pullman side curtains, so that in case of stormy weather the cockpit will be well protected. She has four watertight bulkheads.

The steering may be done either from a horizontal wheel aft or from a wheel at the forward port side of the after cockpit. This arrangement was first used by the designers on the tenders of the S. Y. Vanadis, Mr. C. K. G. Billings, and proved satisfactory.

She is equipped with two 75-horsepower Simplex motors, which Messrs. Tams, Lemoine & Crane have used in several launches, and have found to be excellent for this type of boat. Her gasolene tanks are of pressed steel, galvanized. There are four of them, arranged in pairs, one pair to feed each motor. The gasolene supply pipes are of copper. Practically all metal work on deck is of brass. The boat has a speed of 30 miles an hour. Her propeller was especially designed by Mr. Crane.

Probably the most striking thing about this boat is her unusual seaworthiness. On her initial trip to Maine she had a long outside run, and surprised even her designer by the way she behaved. She was one of the scout division in the Hudson-Fulton Naval Parade and was much admired. She was entered in the races held by the Hudson-Fulton Commission; but, owing to an accident, was unable to compete. This was much regretted, as she would have been a notable addition to the fleet of fast motor boats competing in these events, and would, without doubt, have given a good account of herself.

The Tarpon was built for Mr. Earl Dodge, who used her this past summer at Islesboro, Maine. There are several other fast boats of this type at Islesboro, among them being one of about this size, which was built two years ago from Messrs. Tams, Lemoine & Crane's designs for Commodore Bourne, and there was good racing in those waters last summer. As an indication of the growing popularity of the class, it may be stated that Messrs. Tams, Lemoine & Crane are designing several launches of this type for next season's use.



EDITORIAL

Published by the Yachting Publishing Co.; Oswald Garrison Villard, President; Herbert L. Stone, Secretary and Treasurer.

The English Challengers for the British International Trophy. It looks, at the present writing, as if we should have to meet three English boats in the race for the Harmsworth Trophy next summer, if the plans of the motor boat clubs on the other side mature. As was told in our last issue, the British Motor Boat Club challenged first and opened negotiations with the Motor Boat Club of America, the present holders of the trophy, to arrange a date for the race. This challenge was followed almost immediately by one from the Motor Yacht Club, in which it was stated that that club would send two boats. There seemed at first to be some friction or misunderstanding between the two British clubs as to who had the challenging authority in that country; but this was, happily, adjusted without any break, with the consequence that we shall probably see both clubs represented in the team that comes over to try to take the famous trophy back to its original home. Each country has the right to send three competitors for the race.

August 20 is the date fixed by the Motor Boat Club of America for the race. It is likely that our faith will be pinned to Dixie as the most tried boat on this side of the water, though there are a number of other fast ones which, if they have anything in reserve over the form they showed last year, might make formidable rivals to her. In this connection we have it on good authority that a boat was turned out last year with this end in view, which was not raced, but in a number of secret trials developed a speed that places her in the first class. We hope that this is true, and that at least one more 12-meter boat of this caliber will be seen at the line. There is talk of new boats, but if anything is to be done it should be started immediately.

In England the British Motor Boat Club is having her challenger built by the Orleans Motor Company, of Twickenham. The hull of this boat is already planked up, and the engines are well on towards completion. We hear that Linton Hope is designing one of the Motor Boat Club challengers, and "The Yachtsman" intimates that there is a possibility of enough boats being built in the club to insure eliminating trials to pick the challengers. As the 12-meter class has been dead in European waters, as far as really high-speed boats are concerned, this seems hard to believe, though we trust it may be so. It will be remembered that the failure of the English challenger to materialize last year was due to the fact that the 12-meter class did not offer enough opportunities for racing abroad to warrant building.

Class Rating and Restricted Classes. While on the matter of this class rating, it would seem that more good could be accomplished and better sport had by reducing the size of the boat rather than by increasing it, as the present tendency abroad seems to be. I say this, realizing the opportunity for speed that the larger sizes and unlimited power give, and that international racing such as is had at Monaco wants no restrictions that will in any way prevent the highest speed that is attainable.

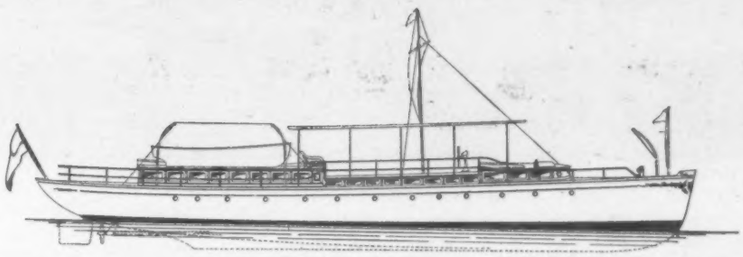
But a 15-meter, or larger, boat, with from 500 horsepower up, is something that but very few men can afford to own and run, and the racing is necessarily limited; whereas if the class was limited to something like 10 meters it is safe to assume that many would be found eager to build and keen to race. It is very much the same as in sail, and it is a recognized fact that the international races for the America's Cup are not a good thing for the sport as a whole, as the smaller boats and little fellows—the real backbone of the sport—are neglected, and suffer accordingly. The restricted racing classes which have been proposed for next season, and on the formation of which a committee is at present at work, should do wonders for the sport of motor boat racing, and I believe, if the rules are wisely drawn, will also do much towards the development of higher speed in boats of a size that the average man can use.

A Dearth of New Sailboats. Outside of a few small one-design classes and the big schooner for Mr. Cochran, there seems to be almost no building of sailing yachts going on. I have recently made a tour of a number of the Sound and New England yards, and everywhere it is the same story. In many of the yards power boats are on the stocks, but in others there is almost no new work of any kind. It does not seem as if the present racing rule is to blame, except in the case of the larger craft, for it has given general satisfaction (so much so that the Lake Michigan Yacht Racing Association has just adopted it), and there is every indication of permanency, although there is yet no guarantee. But building is high at the present time, and with so many people turning to the power-boat end of the sport, and the bargains offering in second-hand boats, the builder suffers. There is yet time, however, for some new craft for the season's racing, and it is to be hoped that a number of contracts will be let before the end of the month.

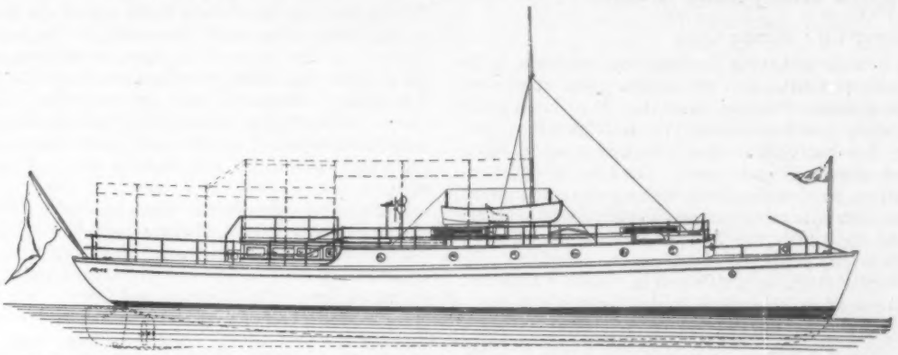
Regarding a Controlling Body in Power Boat Affairs. It looks as if a good-sized hornets' nest has been stirred up by the action of the National Power Boat Association in its endeavor to make itself the supreme governing body in power-boat affairs in this country, a position which the American Power Boat Association, by reason of its priority, has so far assumed, though not in a very decisive way.

The feeling has undoubtedly been growing that there is need for a controlling organization in motor-boat racing affairs of really national character, one that shall promulgate rules, methods of procedure, etc., and act in an advisory capacity. It would seem on the face of it that the A. P. B. A. has not made the most of its opportunities in this respect, and that the expenditure of a little more energy and push would have resulted in its being recognized as the national governing body, very much as the A. A. U. is in athletics. Some exception has been made to the powers back of the Western organization, on the ground of their having personal interests to further. Be this as it may, the time is ripe for the creation of such a body, and if the Western association succeeds in its endeavors to make a really national association, it will do much for the sport, and the A. P. B. A. will have to contemplate a lost opportunity.

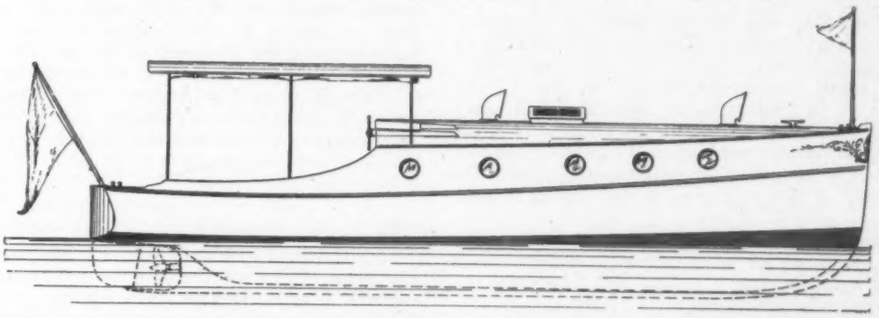
WHICH DO YOU PREFER?



AN 80-foot Power Cruiser, with two 80-100 H. P., 6-cylinder Speedway engines. While the dimensions are such that the boat can easily pass through any of our existing canals, at the same time, it has extremely good seaworthy qualities. The cabin accommodations contain a large saloon, two moderate sized staterooms, a social hall, and a large bathroom. A party of eight, exclusive of the crew can be comfortably accommodated.



65-FOOT Cruiser, built by us for Mr. Clarence Morgan, of Burlington, Vermont, for service on Lake Champlain. A 50-60 H. P., 6-cylinder, 6 x 6 Speedway engine, gives a speed of 12 miles per hour. There is a large double stateroom, saloon, and very complete galley, entirely separated from the engine room and crew's quarters.



30-FOOT Raised Deck Cruiser, designed and built by us for Mr. L. J. Bell, of Lake Charles, La. This is undoubtedly the most comfortable and convenient single-handed cruiser yet launched. The owner's cabin is a large stateroom, with double bed and plenty of lockers. There are accommodations in the engine room for a guest or paid hand, and with the four cylinder 4½ x 5 Speedway engine a speed of nine to ten miles per hour is attained.

Above are illustrated three very successful craft built by us for three widely different purposes. Each boat has given unqualified satisfaction to its owner during the past season—but that is the usual course of procedure with boats designed and built by us. ¶ If any one of these fit your requirements, we would be very glad indeed to go into details regarding plans, cost, finish, etc., or should you desire something different, tell us so, specifying just what your requirements are and we will send you preliminary sketches and estimate without charge.

Seabury Water Tube Boilers and Marine Steam Engines. The "only" Naphtha Launch.

SEND 10 CENTS IN STAMPS FOR OUR NEW CATALOGUE

Gas Engine & Power Co., and Charles L. Seabury & Co.

(CONSOLIDATED)

MORRIS HEIGHTS, NEW YORK CITY

ATLANTIC CITY YACHT CLUB.

Driftwood from Along Shore

Picked Up on the Jersey Beach

Atlantic City Yacht Club

THIS famous old club is soon to have a distinguished addition to its membership and to its beautiful fleet of yachts. The newcomer is none other than Senator Penrose, with his luxurious yacht Betty, which he recently purchased from W. Barclay Henry, of Newport. In his new craft, Senator Penrose has procured a vessel fitted to the desires of the most enthusiastic of yachtsmen. The boat is schooner-rigged, 75 feet long, and built on semi-racing lines with overhanging stern. There is an auxiliary engine. She will carry a crew of twelve able seamen, under Capt. Jesse Yates. At eight bells the Senator will crawl out of a mahogany-trimmed berth into an enameled tub of sea water. Breakfast will be served on a polished mahogany table, on which will be choice viands and wines from foreign ports, prepared in a complete galley from a refrigerator in which half a ton of ice can be stored, and enough eatables for a voyage across the Atlantic. After going into commission, under the flag of the Atlantic City Yacht Club, the Senator has planned a cruise in the waters of the West Indies and South America.

Ventnor Yacht Club.

Many distinguished men of the State and city were guests of this club at a banquet given in the Marlborough-Blenheim, Tuesday, December 28, to Governor Fort, as a token of appreciation of his efforts for an inland waterway along the New Jersey coast. Assembled around the board were State senators, the legislators of the State and the commodores of every yacht club from Cape May to Sandy Hook. It was an occasion of great importance to every yachtsman along the coast, and the Governor's remarks in support of this great project were greeted by prolonged applause. He promised his undivided support of this waterway at the coming session of the Legislature.

At present, the Governor said, there are 18,000 craft of every description in the State of New Jersey, each one of which would be licensed with the construction of the inland waterway, and it was his firm belief that the number would increase to 80,000 when the gates of the canal were finally thrown open. It was fitting that Commodore Thompson should be toastmaster, for the birth of this marine highway project is credited to him. Sometime ago he was in conference with the late Stewart Shinn, and the idea was then expressed when he remarked that he believed he should have as good a highway for his boat as the man who owned an automobile. Following this talk the Commodore took the matter up with city and State officials. Bills were introduced in the Legislature, and now the realization of his dreams, and the dreams of every yachtsman along the Jersey coast, will soon come true.

Boats drawing 4 feet of water may travel this highway, and it was predicted by Capt. Mathis, State Senator from Ocean County, that in the near future New Jersey would be able to offer a harbor to vessels drawing 17 feet. The attractiveness of a waterway 100 feet in width and 6 feet in depth, extending from Cape May to Bay Head, to those who sail the smaller crafts will be very great, and, furthermore, will be the means of bringing thousands of new boats to these waters. Characteristic in every particular of the plan which it was supposed to advocate, the decorations of the banquet hall were nautical, being fashioned after a ship's hold. The room was ornamented at frequent intervals with wheels, oars, rudders, anchors and ropes. The pennants of all the yacht clubs along the coast were hung the entire length of the room. At the far end, under the side lights of a ship, and nailed to the mast of the vessel, was a huge electric pennant of the Ventnor Club. Running the length of the table was a shallow tank, in which were floating miniature yachts of every model and description, and labeled, "New Jersey's Waterways at Present."

Seaside Yacht Club.

With the passing of 1909 fades one of the greatest seasons in the history of this club. Any night you can see the boys sitting around the galley stove, or in the cabin of the club, conducting enthusiastic post-mortems on the great scoops made over their rivals during the "good old summer time." The night I dropped down the hatchway, I found Capt. Maupay, Capt. Lippincott and Capt. Reed going through an almanac and calendar counting the days, hours and seconds before they could see their boats slip into the water once more, and shaking dice for the inside position in the first race.

During the past season there has been a far greater interest shown in the open races by neighboring coast clubs than ever before, and the exchange of courtesies between rival organizations has been a matter of great satisfaction to all, and presages a closer relationship for next year's racing season. The Ventnor and Ocean City Clubs have been particularly courteous in entertaining as well as participating in the inter-club contests. Among the past season's successful boats is the beautiful Salome, E. A. Parke, commodore, and the Hermitage, Capt. J. H. Lippincott. The former stowed away the ocean race for cabin cruisers, and the latter pulled down first prize over the old salts of Barnegat Bay in the same month. Then comes Lottie, little queen of the "Cricket Fleet" (Capt. Andrews), victorious over Ocean City in the anniversary races and the Chelsea Cricket Fleet on August 3. Ilys, Isabela, Vincent, Margaret, Colonel, etc., will never forget Capt. Paschacy in the little Niagara cruiser Chasbea, which took second to Estella, I. H. Y. C., for the handsome Bolte Challenge Cup, over the ocean course. Atlantic City is the logical center in New Jersey for open ocean inter-club racing, and as the Seaside Club is the only nearby club to hold open ocean races for both sail and power boats a busy season is looked forward to in 1910.

Longport Yacht Club.

The Longport Yacht Club has closed the initial year of its existence, and is very contented with the results. It has opened a commodious club house, with ample docks over the deep water that runs close under the inside thoroughfare near Great Egg Harbor River, where it will be in a position to receive and entertain visiting yachtsmen who must pass that way in cruising along the inland waterway of New Jersey. The season of 1909 was noted for many fine contests between the motor boats of the club and between the little racers of the mosquito fleet sailed by members and visitors. Plans for the 1910 season cover a large field of events.

Ocean City Yacht Club.

When the last boat crossed the finishing line in the last race of the season, and the final gun was fired on the club dock late in September, a glad but regretful crowd of skippers and their crews shook hands and parted. Glad because there never had been a season in the history of the club so eventful and full to the brim of sport; regretful of its departure because the other clubs had stowed away their boats, and there was nothing more to beat. All winter Capt. Zurn, who showed such a beautiful pair of heels to the rest of the fleet in Catherine 2d, will gaze with great satisfaction on the beautiful cups which he lifted during the past season. One of the prettiest races of the year was the open yacht race August 3, sailed over the inside course by the three Ocean City Club boats—Alice, Capt. Statzell; Old Batch, Capt. Breckley, and Oh, See! Capt. Sloane. This was pulled off in a spanking northeast breeze, necessitating the three reefs and with all hands hanging over to windward. The test proved just right for Alice, which won in one hour and twelve seconds, over an 8-mile course, one-half being short-windward work against a strong tide. The fullness of the satisfaction in winning was partly denied Capt. Statzell by the fact that though Manhasset, the Seaside Park Yacht Club flyer, and

I. H. Y. C. lay in harbor close by, they failed to participate because of the rough going.

No one will forget the wonderful record-breaking exhibition of the Dixie which she gave here during anniversary week.

Buffalo, N. Y.

At the annual meeting, recently held at the Iroquois Hotel, the Buffalo Yacht Club decided to make its dreams of a new club house on Point Abino come true this summer. Plans are being prepared by local architects and building will be begun in the spring. The building is to cost $15,000, and it was the announcement that a considerable part of that amount is now in sight that decided the club members to go ahead with the project without any further delay. Twelve acres of land, having a frontage of 700 feet on Point Abino Bay, was purchased some time ago at a cost of $16,000.

The club house is to be large and complete down to the most minute detail. Its purpose will be to furnish accommodation and comfort for those who sail from the anchorage across to the Canadian shore. The old shelter house will be left where it is, despite the fact that it is small and not overly handsome. It is to be used as a home for the women guests of the club, who like to sail across with their husbands or brothers to spend the week-end at the Point. In this way the old building solves a problem which has given considerable trouble. When the old shelter house was designed there was no thought of the possibility of women visitors, and provision for their accommodation was lacking.

The meeting last month was the most enthusiastic the club has known in its sixty years of healthy growth. Everyone there was determined to increase the club's strength and make it foremost among all the organizations of the Great Lakes, and there was no lack of suggestions toward this end.

For the first time in the history of the oldest member the yacht club dabbled a little in national politics, and thereby the Aldrich-Payne tariff bill came in for some hard knocks, on account of the sections imposing a tax on foreign-built hulls. The sentiment of the members seemed to be favorable to the encouragement of the American boat-building industry, but they freely expressed the opinion that the provisions of the new tariff are too harsh in the case of owners who are, to a large extent, forced to import their hulls from Canada or Scotland.

Only one contest enlivened the election of officers. This was for the office of vice-commodore, and Edward N. Smith carried the day, defeating Clarence L. Buckpitt by a few votes. The other officers who will guide the affairs of the club during the year are: Commodore, Edward Michael; rear commodore, Edward Oldman; secretary, Robert Mason; treasurer, F. D. Wood; fleet surgeon, E. P. Hussey.

One of the big events of the winter was the Rhoda Royal Circus, held in the Broadway Arsenal by the Motor Boat Club from January 10 to January 15, inclusive. It was the good old-fashioned kind of a circus, with a sort of wild west appendage. One hundred and twenty-five people—all professionals—took part, and the performance was first-class in every detail. In holding the circus the club hoped to raise $10,000 toward the cost of its new home on Motor Island, and the amount realized lacked only a little of reaching that sum.

The Motor Boat Club held its annual election of officers on Monday evening, January 17, and marked the occasion by a banquet at the Hotel Statler. The officers were elected as follows: Commodore, Harry Thorp Vars; vice-commodore, E. F. Dold; rear commodore, Frank H. Bliss; secretary, Philip Gerst; treasurer, Edward L. Wilkes. The only contest was among the directors. The successful candidates were Thomas Moffat, E. M. Statler and Dr. Carlos E. Cummings.

Cruising on the Illinois-Michigan Canal

Only 110 motor boats passed through the Illinois-Michigan Canal during 1909. This aggregate number seems insignificant when compared with the number using some of the Eastern canals; but there are some unusual things connected with the traffic on this ditch. It is the only highway connecting the Great Lakes with the Gulf of Mexico, via the Illinois and Mississippi Rivers. It is rarely ever used by motor boat men unless they are bound on long cruises, for the reason that its upper reaches are filled with foul smelling water of a soup-like consistency, supplied from Chicago and Joliet sewage drains. Therefore, nine-tenths of the motor boats passing this canal are on cruises seldom less than 1,000 miles in length, and sometimes reaching up to 10,000 miles. During the months of September, October and November forty-two of the total of 110 passed the canal, and almost without exception they were bound for New Orleans or for Florida. The great majority of them were elegantly equipped, full-cabined, high-powered boats of the latest model of lake and ocean-going cruiser, from 40 to 90 feet over all.

Stanley A. Beadle, in a 26-foot, three-quarter cabin Muskegan boat, made especially for a cruise from that city to Florida, via New Orleans, had the distinction of being the last boat through this canal. He passed on December 1, the latest date any navigator had passed it in twenty-three years. On December 7 he sailed, with two companions, from Peoria, Ill., in a raging blizzard, with the temperature at zero. He reached the mouth of the Illinois river at Grafton two days later, and the following day sheet ice ripped the bow of his craft open, and she sank in 10 feet of water. He succeeded in raising it, however, and proceeded South as soon as the ice permitted.

August seems to be the popular month for cruising. The traffic by months, as compiled by Secretary John M. Snyder, at Lockport, Ill., was as follows: April, 4; May, 2; June, 17; July, 10; August, 35; September, 9; October, 18; November, 14; December, 1.

This canal is 96 miles in length, beginning at Bridgeport, in the southwestern section of the city of Chicago, and extending to La Salle, Ill., on the Illinois River. It contains fifteen locks, 90 by 17 feet, with a normal depth of 4 feet 8 inches. Between Chicago and Joliet boats having a draft of more than 3 feet may find shoal water, but if the canal office at Lockport is notified it will be pumped up to its normal depth. The least possible head room under stationary bridges is 11 feet 4 inches.

Baltimore and Chesapeake Bay

The Corinthian Yacht Club, of Baltimore, now entering upon its seventeenth season, is the second oldest organization of its kind on Chesapeake Bay. Composed of young men, most of whom are Corinthians in the true sense of the word, the club has grown steadily since its incorporation in 1893, and it has a splendid location, ample anchorage, and is well equipped for the convenience of its members.

The Corinthians are enthusiastic over the sport, whether it be with motor boat, auxiliary or plain sailing craft, and during the spring, summer and fall it is rare not to find the anchorage deserted and all the boats on the bay. The interest in motor boats is best shown by the number of handsome craft that fly the red, white and blue burgee of the club, and while, as yet, the racing has been confined to sailing craft, the club boasts a number of speed boats.

Indeed, it was due to some members of this club, Messrs. Ed. Loane, Jr., E. W. Graef, Frank Stevens and N. Tip Slee, that the gasolene engine was first introduced on the Chesapeake. These gentlemen, with the firm of White & Middleton and Capt. C. C. Roe, of Baltimore, suffered all the inconveniences of the early power boatmen, but they were the pioneers, and to them goes the credit for the many weary hours they spent tinkering with their first crude internal-combustion "pots."

The club always holds three races each year, one on Decoration Day, one on July 4, and one on Labor Day, and on each occasion the affair draws a large attendance of ladies and gentlemen, who witness the races from the decks of following steam and motor craft.

STATION AND LAYING-UP BERTHS OF CORINTHIAN YACHT CLUB OF BALTIMORE.

Perhaps the most noteworthy feature of the club are the week-end cruises, beginning Saturday evenings. It is not unusual for a dozen or more yachts to participate in these cruises, and the sailing craft always race to and from the rendezvous. The past season saw all the racing honors of the club captured by the Zillicoa, owned by Mr. W. B. W. Mann.

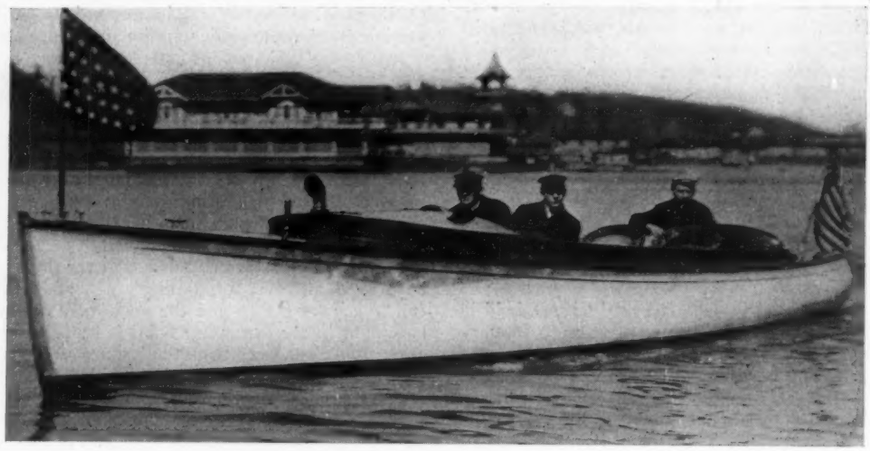
(Con. on page 176.)

New York, February 19 to 26, 1910

A Yacht Tender, Two Runabouts, a 42-Foot Cruiser and Some New Speedway Engines

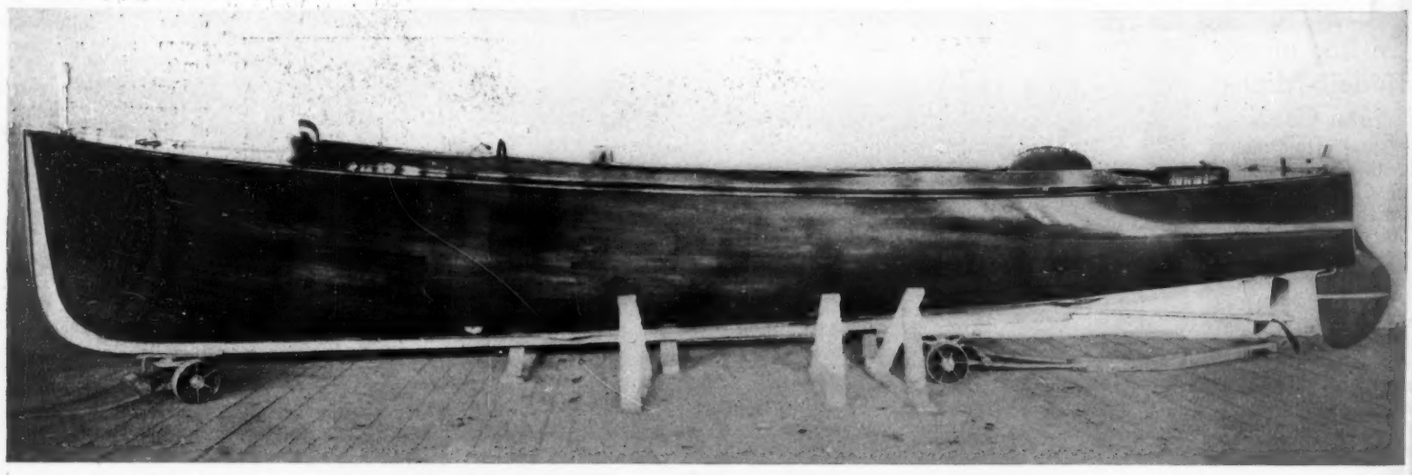
The Gas Engine & Power Company and Charles L. Seabury & Company, of Morris Heights, New York City, will make a most magnificent showing at the New York Show in spaces R and S, 70 feet by 40 feet, wherein will be displayed four boats, completely fitted and furnished, and a collection of Speedway engines, among the latter being a new addition of the Speedway family.

The exhibit of boats will consist of a 25-foot yacht tender, a 30-foot runabout, a 45-foot sea-going runabout and a 42-foot raised-deck cruiser. The yacht tender is 25 feet over all, 5 feet 6 inches beam, and is equipped with a four-cylinder, four-cycle 4 by 4½-inch, 12-16-horsepower Speedway engine of latest design, arranged with force-feed oiling system, water-cooled exhaust manifold and magneto. Both interior finish and planking will be of mahogany, and the motor is located forward under hinged covers, and arranged for one-man control. A wind shield forward protects the steersman, and a Cape Cart automobile hood of red pantasote will cover the cockpit. The seat cushions will be of red leather, to match the cover, and will be hair filled. The entire boat will be of bright varnish finish inside and outside. She is expected to make 12 miles per hour.



30-foot French Torpedo Stern Runabout, with 4-cylinder, 4-cycle, 18-22-H. P. Speedway engine.

This is the type of boat that will gladden the heart of the yachtsman who wants something in the way of a tender that is not only highly finished and speedy, but possesses the seaworthy qualities so necessary to a boat designed for such usage. Of the two runabouts, one is a 30-footer of the French torpedo V stern type, with an 18-22-horsepower, four-cylinder, four-cycle Speedway engine, under the forward end of cockpit. This boat is 30 feet in length over all, 29 feet 6 inches on the waterline, 6 feet beam, and the draft is 25½ inches. The cockpit, from the engine bulkhead to the athwartship lazy-backed seat in the stern, is left free for chairs. A ventilating cowl, over the forward end of the engine compartment, keeps the engine space cool. She is a one-man controlled boat, spark and throttle being attached to an automobile-type steering wheel, the reverse lever being on the left hand and the steering crank on the right hand of the operator. The hull is of cedar, copper fastened, with painted white decks, while motor hatch and interior finish is in mahogany, natural finish. The speed is 14 miles an hour.

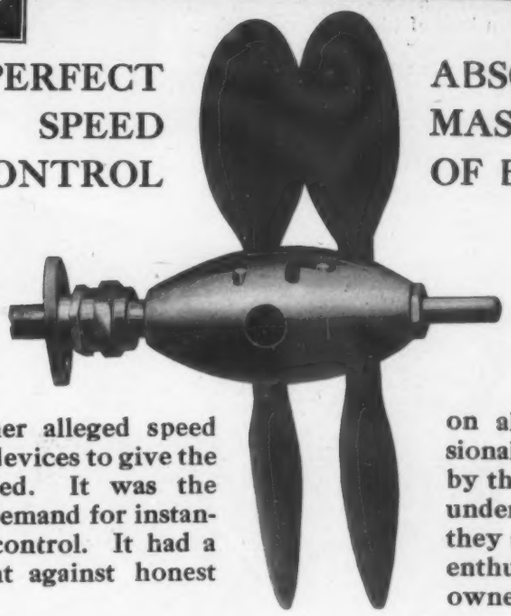


25-foot Yacht Tender, with 4-cylinder, 4-cycle, 12-16-H. P. Speedway engine, with which she makes 12 miles per hour.

ROPER Safety Propeller

PERFECT SPEED CONTROL

ABSOLUTE MASTERY OF BOAT



Three years ago the Roper Safety Propeller was comparatively unknown. It came on to the market immediately following the failure of other alleged speed controlling and reversing devices to give the flexibility that was needed. It was the scientific answer to the demand for instantaneous and positive boat control. It had a tremendous battle to fight against honest prejudice and scepticism.

Despite the odds against it, despite doubts and outright opposition, the Roper Safety Propeller has triumphantly *"Won Out."* Now hundreds of these propellers are in use on all types of motors owned by professional boatmen, and, more convincing still, by the United States Navy. Wherever, and under whatever conditions they are used, they are giving perfect satisfaction and are enthusiastically endorsed by their delighted owners.

PERFECT CONTROL *vs.* "perfect control"

Two years ago the Roper Safety Propeller was advertised to give PERFECT CONTROL to a motor boat. This was a strong claim interesting to boatmen and—TRUE.

Since then, the advantage of PERFECT CONTROL has been thoroughty recognized. Makers of reverse gears and ordinary reversing propellers have learned its importance, and some of them have claimed it for their mechanisms.

BUT the "perfect control" of the reverse gear and ordinary reversing propeller is the same old "perfect control" which existed before the day of the Roper Safety Propeller. It is three-lever control with throttle, spark and reversing lever, and it carries with it the liability of engine racing, flooding, stalling, and confusion of mind in emergency.

Roper PERFECT CONTROL is a different proposition. It is in a class by itself. There is but one lever to handle, no adjustment of throttle or spark, and no practical variation in the speed of the motor, no matter what evolution the BOAT is put through.

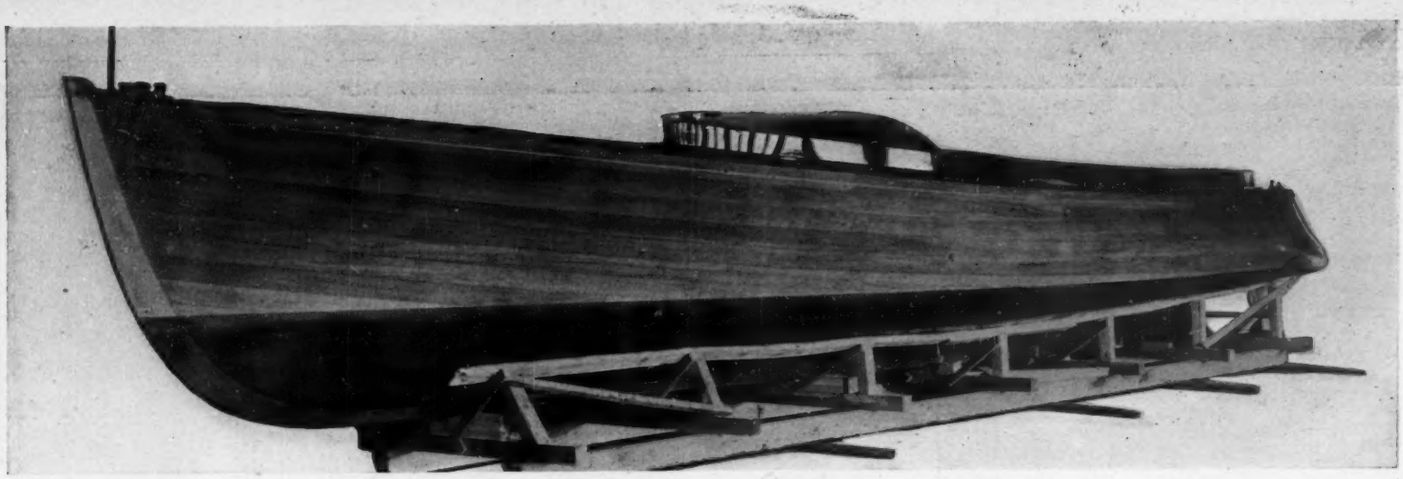
Which appeals to you? That old humbug "perfect control" of the reverse gear and old reversible propeller, which has caused so much profanity and real antipathy towards motor boats in general, or the up-to-date Roper Safety Propeller PERFECT CONTROL, which makes motor boating pleasurable, simple and safe? The shadow, or the REAL THING?

The testimony of users carries its own conviction. Send for "After the Trial."

AGENTS IN UNITED STATES—NEW YORK CITY, Henry C. Squires' Sons, 44 Cortlandt St.; BOSTON, MASS., Kershaw-Williams Co., 77 Haverhill St., PHILADELPHIA, Pa., W. S. Carman, The Bourse; PORTLAND ME., G. D. Thorndike, 29 Portland Pier; CHICAGO, ILL., James M. Wait & Co., 1205 Michigan Ave.; JACKSONVILLE, FLA., Geo. E. Chase & Co., 323 E. Bay St.; PORTLAND, ORE., Rierson Machinery Co.; PROVIDENCE, R. I., Walter Coleman & Sons, 300 S. Water St.; SEATTLE, WASH., Palmer Bros., 800 First Ave., South.

AGENTS IN CANADA—MONTREAL, Henry Morgan & Co., Ltd., Colonial House; BRANTFORD, Schultz Bros. Co. Ltd.

C. F. ROPER & COMPANY, - - Hopedale, Mass.



45-foot seagoing, 20-mile runabout, with 60-H. P., 6-cylinder Speedway engine.

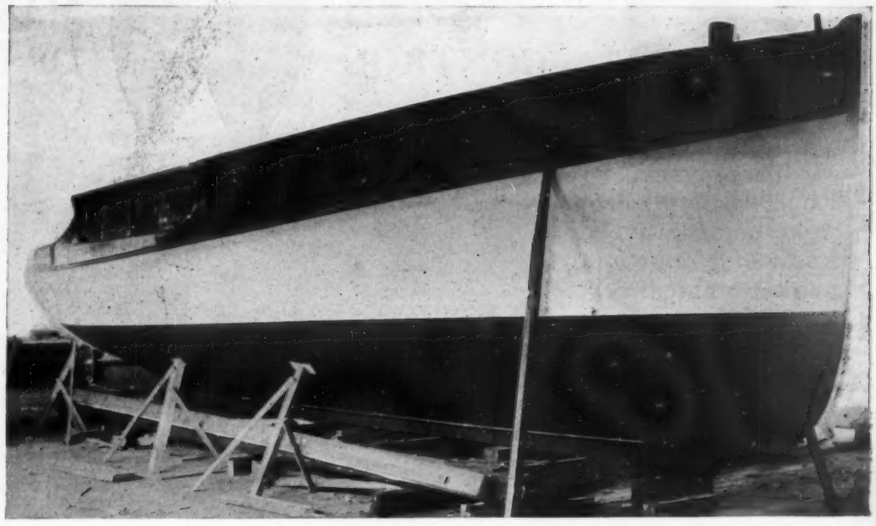
To the man who wants a fast boat that will stand really rough water, the 45-foot sea-going runabout will prove of consuming interest. This boat, of a size which a few seasons ago would have been considered adapted for cruising use only, shows the trend in favor of the open boat of high speed and sea-going qualities. She is equipped with a 60-horsepower, six-cylinder Speedway engine, which develops its indicated horsepower at 750 revolutions per minute, and gives the boat a speed of 20 miles per hour. The boat is 43 feet 6 inches on the waterline, has 6 feet 6 inches beam and draws 21 inches. The stern is of the same type as that of the 45-footer exhibited by this concern at the 1909 Show.

The boat is planked with selected white cedar, with bright varnish finish, trimmings are of mahogany, and there is a sufficient space under the engine hood for a man to turn in and sleep should it become necessary.

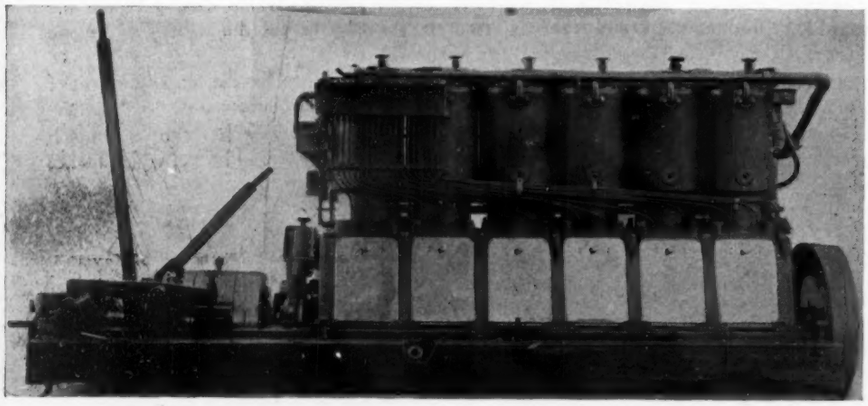
To the cruising man, the portion of the exhibit that will prove most interesting is the 42-foot raised-deck cruiser type launch, with 9 feet 6 inches beam and drawing 3 feet. The power equipment of this boat is a 32-40-horsepower Speedway engine, with steering wheel control. The boat has a plumb bow and compromise stern. The topsides have considerable flare, insuring dryness in a seaway.

The raised deck ends somewhat forward of amidships, and from that point runs a cabin trunk with glass windows, the width of the cockpit. A large toilet room occupies the forward portion of the boat. Aft of this comes a saloon, 13½ feet in length, and arranged with two extension transoms on either side. Aft of this comes the motor compartment, on the port side of which is an alcohol cooking stove and oven, white enamel sink, ice-box and dish racks. On the starboard side of the engine room is an extension transom for the accommodation of the engineer. A notable feature of the boat is that the compartments into which she is divided are large enough to permit of their occupants moving around with comfort, and shows a move in the right direction, as against the tendency to cut up interior accommodations into small cubby-holes, which look very seductive in plans and prove quite the reverse in actual practice.

Among the Speedway engines will be a newcomer in the shape of a six-cylinder, 7½ by 9 inches, capable of developing 115 brake-horsepower at 600 revolutions per minute. The design is substantial in every way, with a one-piece bed of semi-circular section, cast with extension for clutch and thrust bearing. Frame is sectional, and the cylinders have separable heads. Water-jacketing is thorough. Water from the pump, after passing the cylinder jacket, enters the heads by means of outside connections; from there it passes to the water-jacketed exhaust manifold. The ignition is a perfected make-and-break system, the current being furnished by a Bosch magneto. By means of the air-starting mechanism it is possible to start on 50 pounds of air pressure. The air tank is kept supplied by means of a compressor driven by the engine. A McCord force-feed oiler furnishes oil to main bearings, crank pins and cylinders. A governor, operating a butterfly valve in the in-take pipe, prevents racing of the engine when working the clutch.



42-foot Raised-Deck Cruiser, with 32-40 H. P. Speedway engine.



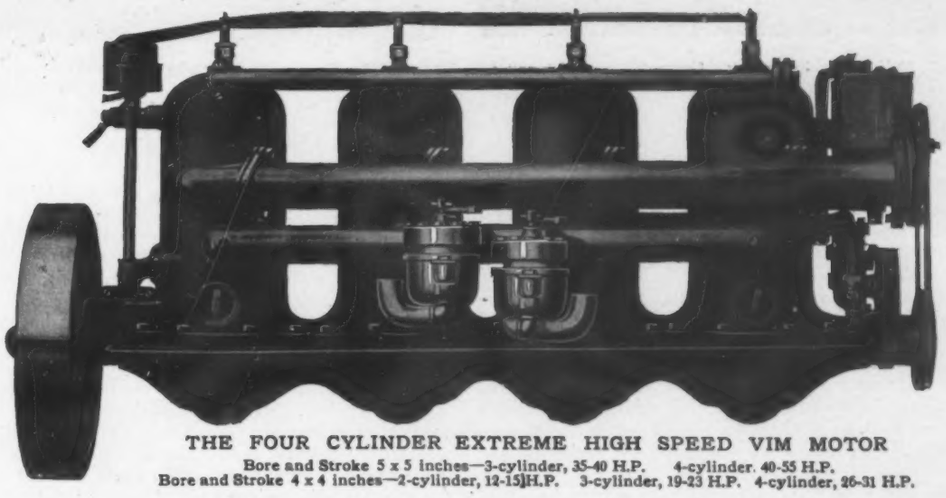
View of starboard side of the new 6-cylinder, 7½ x 9-inch Speedway engine, which develops 115 brake-H. P. at 600 R. P. M.

A Deep-Sea Cruiser, Three Fast Launches and a Lake and River Cruiser of Novel Design

Two prominent features of the exhibit of the Elco Company, of Bayonne, N. J., in spaces L and M, will be a 40-foot deep-sea cruiser and a 54-foot 15-mile launch of novel design, particularly adapted for use on lakes and rivers. The deep sea cruiser is a rather radical departure from previous types of the Elco product, but she has all the appearance of being the forerunner of another line of Elco successes.

Seaworthiness and reliability are naturally the chief requirements of a cruising type of power boat. The Elco 40-foot cruiser has been designed throughout with this always in view, the maximum strength in hull construction being obtained. The dimensions are 40 feet over all, 9 feet 8 inches beam, and a draft of 3 feet 9 inches. The liberal proportion of beam to over-all length makes a very steady and seaworthy cruiser, while also per-

More than Speed and Power—Strength and Durability for the Hardest Service



THE FOUR CYLINDER EXTREME HIGH SPEED VIM MOTOR

Bore and Stroke 5 x 5 inches—3-cylinder, 35-40 H.P. 4-cylinder. 40-55 H.P.
Bore and Stroke 4 x 4 inches—2-cylinder, 12-15 H.P. 3-cylinder, 19-23 H.P. 4-cylinder, 26-31 H.P.

VIM MOTOR

The Most Perfect Two-Cycle Engine Made

It is acknowledged that the new Extreme High Speed Vim is the simplest marine motor in the world.

It is further conceded to be the most powerful engine in the world for bore and stroke dimensions.

This new Vim, incorporating the perfection of the two-cycle principle with a development of power not to be had in any other engine of like size, possesses still another cardinal virtue.

This is the virtue of strength and rigidity.

Many engines possess that which—in comparison with this new Vim—may be termed a fair degree of speed and power; but their weight and strength have been sacrificed to a degree that renders them unfit after a short term of hard service.

In the Vim we have attained the maximum of speed and power, and at the same time retained the strength and stamina and the utter simplicity which are the distinguishing marks of Vim motors.

Thus the Extreme High Speed Vim type is not only the engine for speed work, but will remain fine and fit and responsive under three to six times the hard service that other engines, built solely for speed, will stand.

Write for the new catalogue, which describes this wonderful engine and the other Vim models for speed and heavy duty, in detail.

THE VIM MOTOR MANUFACTURING CO.

436 Market Street, SANDUSKY, OHIO

REPRESENTATIVES—G. D. Thorndyke Machine Co., Portland, Me.; F. B. Burton, Baltimore, Md.; W. S. Carman, Bourse Bldg., Philadelphia, Pa.; I. L. LaFleur, Ltd., Montreal, Que.

35-foot Elco Express, with 6-cyl., 60-H. P. gasolene motor. Guaranteed speed, 22 miles.

26-foot Elco Express Launch, with 4-cyl., 40-H. P. gasolene motor. Guaranteed speed, 18 miles.

mitting of unusually roomy cabin accommodations. Sleeping accommodations are provided for seven; two in the private stateroom forward, in standard full-length berths, two in the main saloon on extension transoms, one on an extension transom in the motor cabin, and two on the cockpit settees, the cockpit being protected by a canvas awning and storm side curtains. Special attention has been devoted to the arrangement of the cabin space, commodious lockers, full-length clothes closets, cupboards and shelves being provided. A speed of 10 statute miles per hour will be obtained. Every convenience is provided for, and as the boat is of the best possible construction and has ample power, its possibilities are unlimited.

The hull is of white oak framing with natural knees and floors, planked outside with Southern cedar, of a finished thickness of 1 inch, the planking being fastened with copper boat nails riveted over copper washers. All fastenings are either of copper or bronze, to withstand the action of salt water

The engine is a four-cylinder, 16-20-horsepower 5 by 6-inch Standard gasolene marine motor, designed expressly for the Elco cruisers. It is equipped with a dual system of ignition, employing battery and magneto, and operating make-and-break igniters. There is a three-blade bronze propeller wheel, Tobin bronze shaft and bronze bearings. A compressed air whistle is placed on the cabin roof, and supplied from an air tank under the cockpit deck. The brass-trimmed mahogany steering wheel is located in the cockpit, the rudder being of solid brass with flexible steel tiller lines. The cockpit awning and side curtains are carried on a galvanized iron frame.

The two gasolene tanks hold 100 gallons, and give a cruising radius of 450 miles on one filling. They are installed under the cockpit seats, resting in wooden cradles on the watertight cockpit deck, so that any leakage from the tanks would flow overboard through the deck scuppers. The tanks are in full view and very accessible. A gasolene filter near the carburetor permits the removal of water and dirt without stopping the engine, an important detail during a race. The exhaust pipe is carried out through the stern transom with circulating water. Alongside of steering wheel, reverse control lever and throttle control are placed, making the Elco cruiser entirely a one-man boat. The best grade of yacht plumbing, with yacht water closet, folding yacht lavatory, plate-glass mirror, paper racks and glass holders, are installed in lavatory compartment. The galley is located in motor cabin, and is equipped with the usual fittings, large, zinc-lined ice-box, sink, with pump to fresh-water tank, stove bench and alcohol stove. Ventilation of engine compartment is provided for by two cowls on cabin roof, sliding windows on sides of cabin house and companionway leading to after cockpit. The sylight, forward, ventilates stateroom and main cabin, together with the brass-rimmed hinged ports on side of hull.

The 54-foot Elco-de-Luxe high-speed cabin launch is an outgrowth of the 40 and 47-footers exhibited at the New York Shows in 1908 and 1909.

By increasing the length to 54 feet, additional cockpit space is furnished, while retaining about the same size cabin as before, and this is an improvement that will make the boat even more satisfactory than the shorter models have proved in the hands of numerous owners. To those who are not familiar with the former Elco models, a brief description will make plain their many good features.

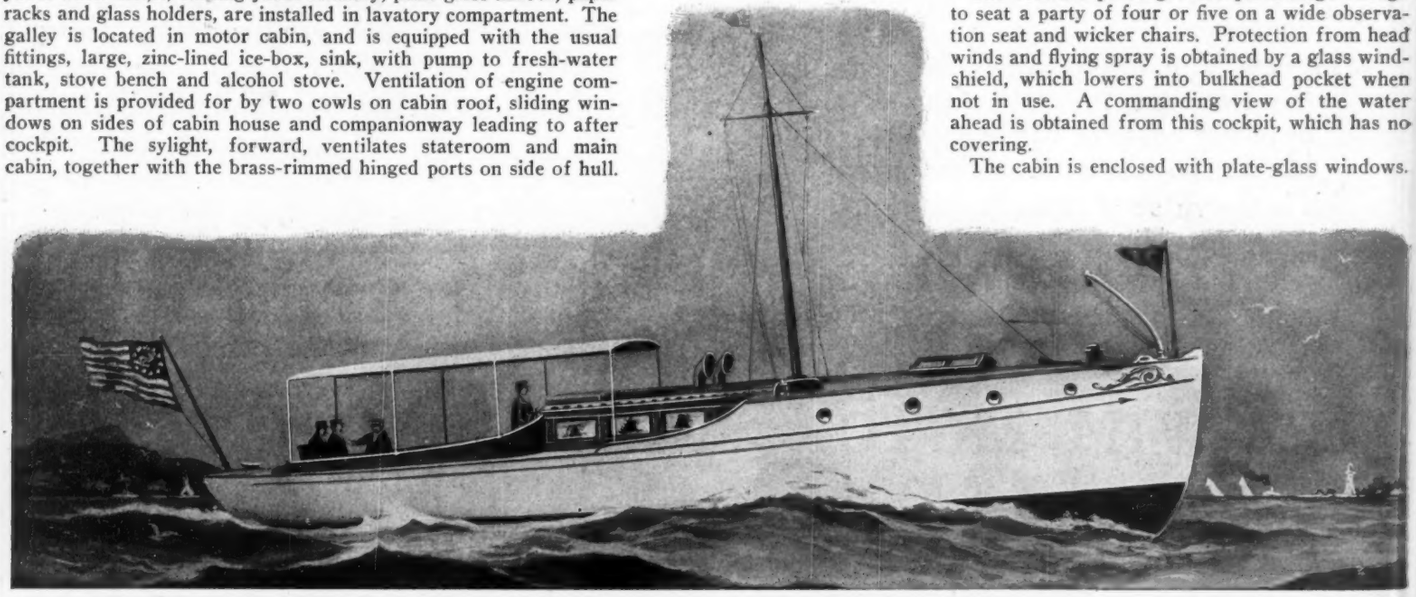
They represent a type of boat that can be handled by one man, with a guaranteed speed of 15 miles per hour. They have large open cockpit space fore and aft for fair weather, spacious cabin amidships, with lavatory and galley compartments. The engine is located forward in a separate compartment, with control levers and reverse gear adjacent to steering wheel, permitting one man to steer the boat and control the engine. The hull is beautifully molded, with graceful lines, notwithstanding the liberal beam, which permits of unusual cabin space and the best of seaworthy qualities. The general dimensions are: All-over length, 54 feet; beam, 9 feet; draft, 3 feet. The power equipment consists of a six-cylinder, 60-horsepower gasolene marine engine, with which power a speed of 15 miles an hour is obtained. The gasolene tank is of 100 gallons capacity, enabling the boat to cover a distance of 150 to 200 miles on one filling of the tank.

While the 54-foot Elco-de-Luxe is designed primarily for day service, the boat is so equipped that comfortable sleeping accommodations for five people are always available. The helmsman has a very comfortable folding berth in the engine compartment forward, while in the main cabin the two settees, or divans, are of the extension type, which can be drawn out, forming wide, single berths. The upholstery of the cushions is most luxurious, with heavy hair mattresses and springs. On the settees in the after cockpit two can sleep, the cockpit being fully protected from the weather when the side curtains are lowered.

This feature makes possible a limited amount of cruising in a high-speed pleasure boat along the seacoast, Sound, navigable rivers and on the Great Lakes. With a speed of 15 miles an hour long distances can be covered during the day. There will doubtless be many occasions when the owner and his guests will find the sleeping accommodations on board superior to those afforded by the hotels on shore.

The forward passenger cockpit is large enough to seat a party of four or five on a wide observation seat and wicker chairs. Protection from head winds and flying spray is obtained by a glass windshield, which lowers into bulkhead pocket when not in use. A commanding view of the water ahead is obtained from this cockpit, which has no covering.

The cabin is enclosed with plate-glass windows.



A new type of Elco Boat. A 40-foot deep-sea Gasolene Cruiser, with 16-20 H. P. engine and sleeping accommodations for seven. Speed, 10 miles per hour.

A Real Signal Counts

A TOY SIGNAL serves the yachtsman well enough when the sun is high and the wind is fair. With the eye to aid the ear, anything audible will do.

But halcyon days, when all goes well, are not the test of a sound signal. Dark nights, drifting fogs and doldrums furnish exigencies not met by lung-power horns and small air whistles. And the craft dismasted or with crippled engine, drenched and buffeted by hungry waves—most of all does such a boat need a voice—a far-flung cry for help—a real signal that counts!

To many a yachtsman, the great emergency when life hangs by a thread, and a single act decides whether he and his human freight are to be restored to safety or swallowed up in the great Unknown—that emergency may come but once in a lifetime. But when it comes, and the elements with which he has so long played turn his strength to mockery, then the forethought that led him to provide for his boat a clear, strong *voice* seems the wisest act of his yachting experience.

The KLAXON is unlike any other signal made. A resilient steel diaphragm is vibrated by a hardened ratchet wheel, driven either by a miniature electric motor or by a hand crank. For the electric type, the ignition storage battery furnishes current. The note of the KLAXON is unique—sharp, metallic, penetrating. It is audible from one to two miles on water, and it arrests attention as far as it can be heard.

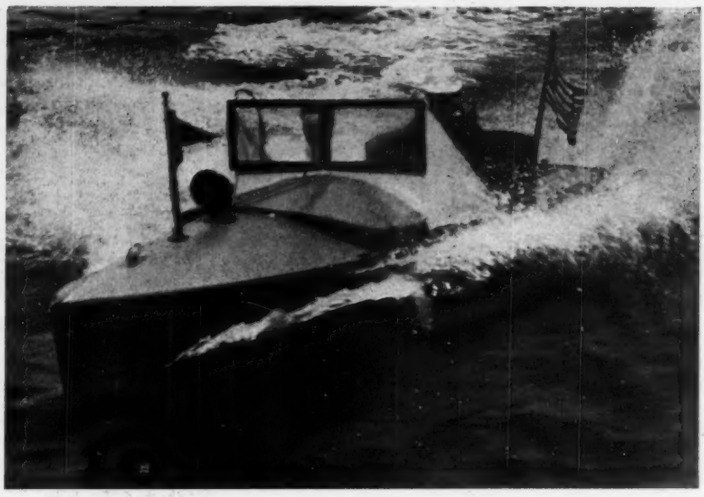
Send for catalog giving full description.

LOVELL-McCONNELL MFG. CO.
Manufacturers
Newark - - New Jersey

THE KLAXON CO.
Sole Distributers for U. S. A.
1 Madison Ave., New York

dropping into pockets of unusual size and design, the space in the cabin permitting of seating comfortably a party of eight or ten. The lavatory compartment is equipped with the usual yacht fixtures, and is entirely separated from the main cabin. The galley is opposite, with stove bench, large ice-box and sink. The after cockpit is arranged for seating eight or ten on the settees and wicker chairs. The cockpit is protected overhead by a light roof, supported upon brass stanchions, and has canvas side curtains.

Between the windows of the cabin, inside, mirrors are placed, which handsomely decorate the cabin space. Electricity is used for lighting, the power being obtained from dynamo driven by main engine with reserve supply from storage battery.



21-foot Elco Express Yacht Tender. 4-cyl., 40-H. P. gasolene motor. Guaranteed speed, 22 miles.

Elco 26-foot Express gasolene launches are in no sense of the word racing machines, but are designed solely as fast pleasure boats, offering the combination of speed, comfort and safety. A speed of 18 miles per hour is guaranteed. The length over all is 26 feet, the beam 4 feet 6 inches.

Comfortable seating accommodations for six to eight people are provided. These may take the form of 'thwartship seats, facing forward, or wicker chairs. For protection against the weather, the cockpit may be covered with an automobile type of hood with side curtains, and an Elco plate-glass wind-shield forward, effectively keeping off rain or flying spray from the passengers. Lockers are provided under the permanent seats, and in place of wicker chairs portable, slatted mahogany seats may be had, if desired. The upholstering is in leather over a hair and cork filling.

The keel is of white oak, with specially bent oak frames, the planking is of Southern cedar, of a finished thickness of half an inch, laid in uniform, clear narrow strakes, and amply secured by copper rivets. All fastenings are of bronze or copper, to withstand salt water. The seams are calked with special cotton, payed and puttied, and the outside finished smooth with three coats of white lead paint above the waterline, and two coats of anti-fouling green copper paint below the waterline. The decks, coaming and interior work are all finished in selected Laguna mahogany, steam-bent coamings extending around the cockpit. All of the hardwood trim is treated in four coats of best spar varnish. The power plant consists of a four-cylinder, 40-horsepower gasolene marine motor, located forward. Ample protection is given the motor by a hinged metal hood, by means of which ready access may be had to the engine compartment. The motor is of the four-cycle type, and has its cylinders cast in pairs. Its cylinder dimensions are 5 inches bore by 4¾ inches stroke, and it develops its rated power at a moderate speed. All valves are placed on the same side. The crankcase is of patented one-piece construction, cast of light but tough aluminum alloy. Lubrication is of the simplest and most effective order; *i. e.*, splash, the supply of oil in the crankcase pit being constantly maintained at the same level by a geared oil pump. Ignition is provided for by a high-tension magneto, with an independent reserve set, consisting of a roller contact timer, four unit coils and a battery. The cam and pump shafts, as well as the idler gear, are mounted on HB-DWF imported ball-bearings.

The levers controlling the throttle and ignition of the motor are mounted on the bulkhead separating the cockpit from the engine compartment, and are directly in front of the steersman, thus giving one-man control. The operating lever of the reverse gear, which is of the planetary type, is also right at hand. This reverse gear is very compact and efficient. It is enclosed in an oil-tight case, and is of the internal expanding band order. The gasolene tank, having a capacity of 20 gallons, is installed under the after deck. It is of heavy sheet copper, with a pan beneath it to drain any leakage overboard. The propeller is of special Elco design, and is mounted on a Tobin bronze shaft carried in bearings of the same material.

The 35-foot Elco Gasolene Express launches will serve on water as the automobile does on land. The length over all is 35 feet, the beam 5 feet 3 inches; the guaranteed speed is 22 miles per hour.

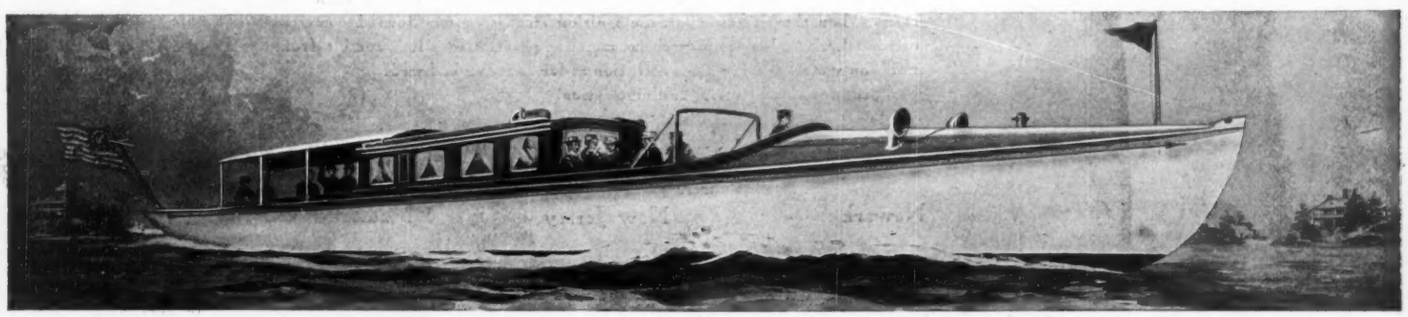
Easy chairs or permanent seats, wind-shield and folding automobile hood, make the boats comfortable regardless of the weather. Accommodations are provided for six to eight passengers, seated in wicker chairs or on permanent upholstered seats. The steersman's seat is near the control bulkhead, within convenient reach of the steering wheel and control levers; the Elco system of placing the motor-control levers on the steering wheel is employed, enabling the owner to drive the boat as he would a motor car. The steering wheel is located on the control bulkhead, just abaft the engine compartment, the engine being installed forward.

The keel is of white oak, with specially bent elm frames. Planking of selected Laguna mahogany, finished thickness ½ inch, in narrow strakes and uniform seams, secured to frames by copper bolts, all fastenings being of bronze or copper to withstand salt water. Outside of mahogany planking is finished in natural wood with spar varnish. There are watertight bulkheads fore and aft, which assist in floating launch in case of accident. Decks and interior woodwork finished in selected Laguna mahogany. Steam-bent quartered oak or mahogany coamings extend around cockpit.

The engine is a six-cylinder, 60-horsepower marine motor, located under the forward deck, a hinged metal hood affording full protection. The motor is of the four-cycle type of 5-inch bore by 4¾-inch stroke, with the cylinders cast in pairs. All valves are located on the same side, the camshaft, as well as the pump shaft and idler gear, being mounted on HB-DWF imported ball-bearings. The crankcase is of one-piece patented construction, cast of extremely light but very tough aluminum alloy. Lubrication is of the simplest and most effective order; *i. e.*, splash, the oil supply in the crankcase pit being constantly maintained at the same level by a geared oil pump. A dual ignition system is installed, employing a high-tension magneto and a storage battery.

The 26-foot Elco Electric launch combines the latest improvements embodied in the electric power boat. For use on lakes and rivers electric launches are acknowledged by all who have used them to be the ideal power boat. The absence of noise, heat, odor, the certainty of operation, ease of control—many of the boats being operated and handled by ladies—and absolute safety while afloat are a few of the advantages that the electric power offers over other types of power for boat propulsion.

The power equipment varies, depending upon the size of the boat. For the 25-foot launch an equipment is installed which gives a speed to the boat of 6 to 7 miles per hour, and with the largest size battery, 50 miles can be covered on one charge. Where convenient charging facilities exist the success of an electric launch is assured. The length over all is 25 feet; beam, 6 feet; freeboard, 20 inches; draft, 22 inches.



Fast 54-foot Lake and River Cruiser. The Elco-de-Luxe Motor Yacht equipped with 6-cylinder, 60-H. P. gasolene motor. Speed, 15 miles.

"BUFFALO" MARINE ENGINES

AN ENGINE FOR ANY SORT AND SIZE OF BOAT

ONCE A BUFFALO OWNER ALWAYS A BUFFALO OWNER WHY?

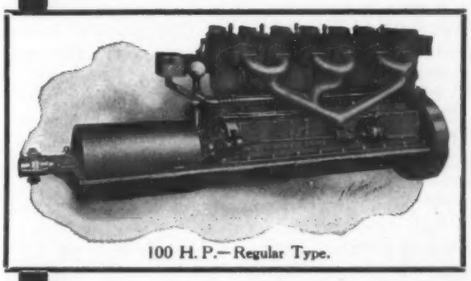
THE REASON for the **persistent,** world-wide use of **BUFFALOS** is the **engine itself.**

THE REASON for the **proven** pre-eminence of **BUFFALO** engines is **BUFFALO QUALITY.**

BUFFALO QUALITY was **not** a cherished **whim,** sought for in the haphazard manner of snatching for a rainbow.

BUFFALO QUALITY was a **premeditated plan,** persisted in for one hundred and forty-four months, having for its logical result the best in design, material and construction that contemporary science was capable of.

THE COMPLETE BUFFALO LINE enables us to **vitalize** your hull with just the right engine to bring out the best that is in her.



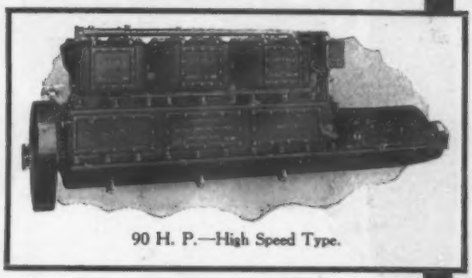
100 H. P.—Regular Type.

Twenty-two Different Engines

REGULAR TYPE
2 to 6 cylinders. 2 to 100 H. P.

HEAVY DUTY TYPE
1 to 6 cylinders. 4 to 54 H. P.

HIGH SPEED TYPE
4 to 8 cylinders. 25 to 225 H. P.



90 H. P.—High Speed Type.

We ask that you sit in judgment on **BUFFALO** engines. Be as severe as you like. Pick them to pieces. Dive into their vitals. Probe into their past. We'll like it all the better.

It is not good sense to take foolish chances in buying an engine. Upon it depends the success or failure of your boat. It can be either an enduring delight or a costly killjoy, and the buying of it should not be made a blind gamble.

Therefore, in judging, eliminate all possibilities or probabilities. Deal only with certainties. Consider only what **BUFFALO** engines are doing and have done—their proven capacity for work and wear.

In the full confidence of what we **know** the years have proven, we tell you to judge **BUFFALOS** with the most severe test you can devise. Maybe your judgment will be the same as the ten thousand who have already selected **BUFFALO** engines—the keen, selective judgment that has called for **BUFFALOS** across the seas and sent them to the distant places on all the continents.

PICK THEM TO PIECES

BUFFALOS will be at the Boston Show, at the New York Show, at the Detroit Show, at the Buffalo Show, at the Chicago Show.

Give them the investigation that convinces.

A good engine will redeem even a poor hull. But a "cheap" engine will not help the best hull. Moreover, the "cheap" engine is a constant curse and a cumulative cost right up to its junkpile finish. In the end, the good engine costs you not nearly so many dollars.

BUFFALO engines are cheap only in the true, long-run sense of fullest efficiency, long years of constant, ever-ready service, and absence of repair bills.

Be wise.

Have you got our complete catalog—a detailed all-about-'em book?

Whose fault is it? Write, wire, phone, shout or wave a flag. Catalog comes.

Buffalo Gasolene Motor Co.

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10,000 IN USE

in racers, cruisers, fishing boats, work boats, launches, and craft of every kind, on the inland waters of all the continents, and on the seven salt seas.

MUST BE A REASON

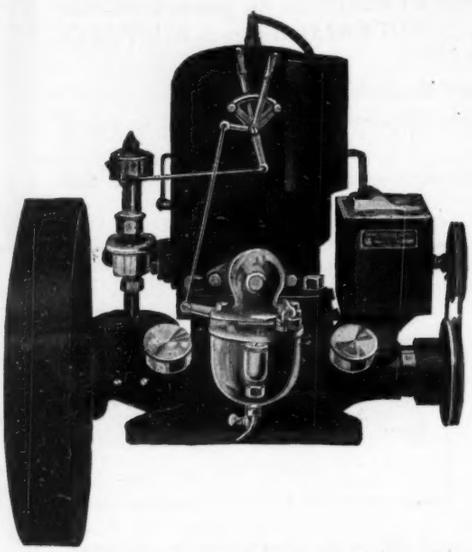
A New Three-Cylinder Engine and Improved Equipment

The Gray Motor Company, of Detroit, Mich., will exhibit a 3, a 4, a 6 and a 10-horsepower single-cylinder engine, also a 6, an 8, a 12 and a 20-horsepower double-cylinder in model "R" and model "S" types, as well as a 21 and a 36-horsepower three-cylinder in their line at the Show this year.

They show no disposition to materially change the design of the line, except in the case of the three-cylinder models, but every detail of the motors shows that each point has been gone over, refined and improved to the furthest limit.

For instance, they retain the coil mounted on the cylinder of the model "S" type, using, however, a fibre case which has been subjected to a weather and heat-proof treatment. This case has enamel finish and a metal cap. The method of attaching the coil to the cylinder, and the manner of leading the high-tension cable to the spark plug, are greatly improved; in fact, the high-tension wire has been shortened to about 5 inches in length, a very evident advantage.

The coil itself is a very beautiful affair, built regardless of cost, and covering the experience the Gray people had last year with about 5,000 cylinder coils, made by five different coil builders, and used on their motors under all conditions. In connection with this, the Gray Company show a most elaborate coil-testing apparatus, claimed to be the only one in a marine gas-engine plant used for testing the efficiency of every coil shipped.



Single-Cylinder, 6-H. P. Gray Engine, with Force-Feed Oiler and Coil attached to cylinder.

The model "S" Gray Motors are equipped with force-feed oiler, with a continuous sight-feed. Each and every oiler is tested in the Gray plant to pump against a pressure of 100 pounds. This test is also shown at the exhibit.

This year the Gray motor is the same color as last—green—but the enamel is baked on, giving a more lasting finish.

The fly-wheel is fitted to a taper shaft. A choice of either of two carburetors, Price or Schebler, is given, and carburetor and commutator controls are on the cylinder, as they were last year. Model "S" motors are equipped with coil on cylinder and pump force-feed lubricator. Model "R" engines are equipped with standard box-coil and gravity lubricators.

The three-cylinder engine is entirely new; designed especially for three cylinders, and is not a combination of the one-cylinder engines. These three-cylinder engines are of the combination two and three-port type, with cylinders as closely coupled as is possible, with safe and liberal bearings between crank cases. The three-cylinder engines have removable cylinder heads, with lubrication through the gasolene. They are so designed that the engine can be disassembled without removing any gasolene, water or exhaust connections; in fact, they are designed to be the "ultimate" in three-cylinder construction.

The Gray Motor Company will also show specimens of their own reverse clutch, which is built in their own plant.

They Hold You Safe

The importance of high-pressure tanks, especially for an explosive like gasolene, cannot be overestimated, as only by proper handling can the danger of accidents be avoided. The securing of a proper receptacle for containing gasolene is of the utmost importance. Gasolene as a liquid is highly inflammable and vaporizes readily. In its gaseous form it becomes a dangerous explosive when not properly handled.

A tank installed in a boat or automobile should at all times be proof against any tendency to open up at the seams or rivets, and thereby jeopardise the property and lives of human beings. Artificial gas, used in illuminating, is no more dangerous than gasolene, and yet no one would put unreliable piping in a house or place of business, but would employ good, strong material to eliminate all chance of leakage. All danger of damage and death can be avoided, and gasolene can be contained as safely as illuminating gas by using strong, cold-drawn seamless steel tanks, that are tinned with pure block tin and thoroughly tested. They cannot leak, and therefore remove what is otherwise an ever-present danger. Pure gasolene will not attack any metal, but there is likely to be foreign substances in it that will attack other metals but not tin. The cause of such action is the presence of acid in the gasolene.

A Janney-Steinmetz cold-drawn seamless steel tank.

This is in a greater or lesser percentage at various times, as gasolene is generally not the regular distillation of petroleum, but is manufactured from the heavier oils. Therefore, it is absolutely necessary to have a tank thoroughly and heavily coated to prevent any deterioration. It is for the good of the sport that gasolene and every other explosive be properly handled. This can be accomplished if they are contained in a Janney, Steinmetz & Co. cold-drawn seamless steel tank, tinned with pure block tin and tested to 300 pounds hydrostatic pressure per square inch, and such tanks cannot and will not leak.

This is why every owner, or prospective owner, of a motor boat will be interested in the exhibit of Janney, Steinmetz & Co., of Philadelphia and New York, who will exhibit at the New York Show a line of their seamless tanks.

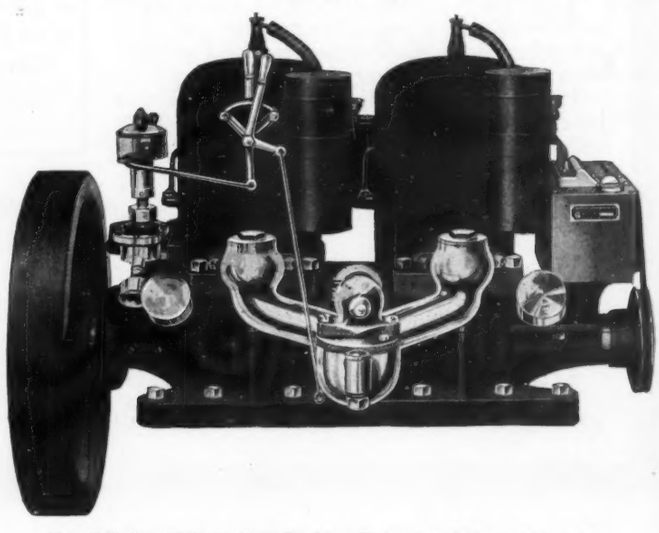
The Vim Exhibit Particularly Attractive

The Vim Motor Manufacturing Company, of Sandusky, Ohio, have secured space F, and will display a complete line of their motors, consisting of nineteen different sizes, as follows: Ten medium-speed motors, five extreme high-speed motors, four heavy-duty motors.

The Vim Motor Manufacturing Company have always adhered to the policy of building only a strictly high-grade engine, and this year's product is no exception. The regular lines of motors has been increased by the addition of four-cylinder motors in two sizes, 20 and 36 horsepower, and by a one-cylinder 3-horsepower and a two-cylinder 6-horsepower motor. The design is almost identical with last year's product, except that new features have been added and the equipment is more complete in detail.

The new features which will be shown are a non-backfiring device, which is claimed by the Vim Company to positively prevent base explosions, caused by too lean a mixture, and an automatic throttle and gasolene control, whereby the flow of gasolene is regulated by the throttle, the needle valve being advanced automatically when the engine is throttled down and retarded when the throttle is open and the engine is running at full speed. The new control adjustment allows only the proper amount of fuel at all speeds of the engine, and the adjustment once made is good for all time. Other features are the accessibility of the motor, which permits the inspection and adjustment of the connecting rod bearings from both sides of the cylinder, and a 45-degree angle exhaust pipe, which allows the exhaust gases to leave the cylinder without back pressure and loss of power.

In addition to the regular line of motors above mentioned, the Vim Motor Company will also show what they claim to be the most important development in two-cycle construction in recent years—the patented improvement being used in connection with an extreme high-speed, high-powered motor for racing boats and fast runabouts. In the development of the Vim extreme high-speed, high-power engine the results obtained not only show greater speed than heretofore found possible, but further tests showed a pro rata increase in power up to 1,350 revolutions. This motor is



Two-Cylinder, 12-H. P. Gray Engine. Note accessibility of the various parts.

The KENYON MOTOR BOAT TOP

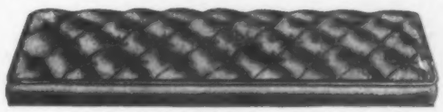
Used by the largest boat builders

NEW EXCLUSIVE FEATURES FOR 1910

NO ADVANCE IN PRICE

THE KENYON LIFE PRESERVING CUSHION

The only cushion absolutely guaranteed to support more weight, and support it longer than any Government inspected Life Preserver.



The best boat builders use "KENYON CUSHIONS" exclusively. If yours does not, he can. INSIST. They cost no more.

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(Formerly La Crosse, Wis.)

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On the Atlantic, Pacific, Lakes or Gulf and All Seaports of Central and South America

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Match Safes

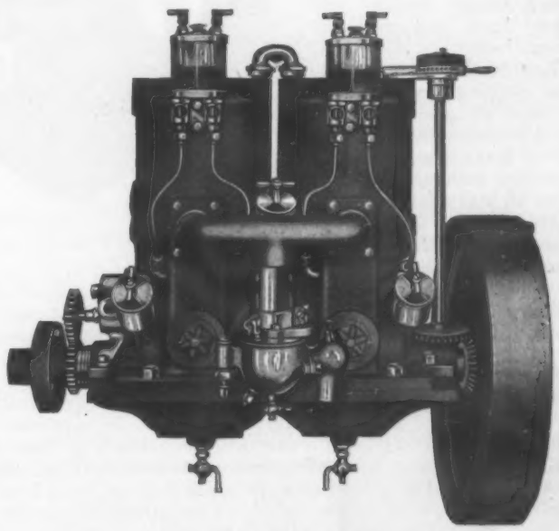
of Especial Benefit to Yachtsmen and Brochure, "Pills and People"

As A Laxative

Wright's Indian Vegetable Pills

Start You Right on Your Cruise and Keep You Right, All Right While at Sea

Wright's Indian Vegetable Pill Co.
372 Pearl Street, New York, U. S. A.



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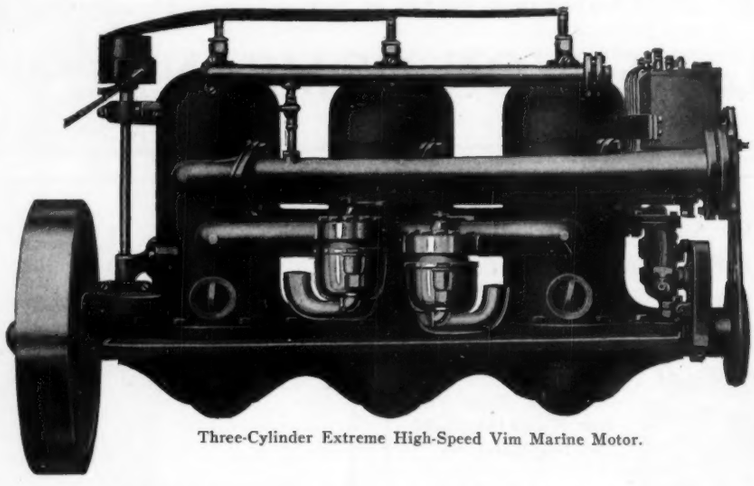
of the three-port type, yet its construction differs from all three-port motors, in that instead of having one system of in-take ports the new motor has a double system, each of them being automatically opened and closed by the piston; and, further, each system of in-take ports has a separate and independent system of carburetion. The object of the additional port is to increase the port in-take area so that more fuel may be drawn into the base, more completely filling same; and the object of the double system of carburetion is to give the motor better control, make it more flexible, and also for the purpose of more completely vaporizing the mixture, thus making the engine more economical. Excepting at extreme high speed but one carburetor is necessary, the other being cut off by merely closing the throttle on either of the carburetors used. The advantage of the new system of ports and double system of carburetion, is not only in the increased power and speed developed, but, further, because a homogeneous and vaporized mixture is obtained, consequently greater economy, the lubrication is better and more positive, and the whole construction is much simpler and the motor has better control.

Durkee's New Bilge Pump.

The equipment of the extreme high-speed motor consists of aluminum base and fittings, mechanical force feed oiler, Atwater Kent ignition, rear control, rear starting device and a special balanced reverse clutch connected to the engine frame.

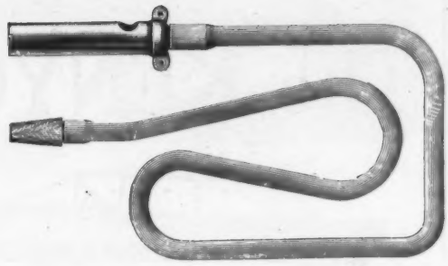
The Vim Manufacturing Company are also building this season a line of heavy-duty motors, built purposely for fishing and oyster boats, in sizes from 3½ to 18 horsepower, in one, two and three cylinders. These motors are heavier in construction than the regular line, and develop their rated horsepower at a lower number of revolutions. The ignition equipment consists of a waterproof jump-spark system.



Three-Cylinder Extreme High-Speed Vim Marine Motor.

Some New Specialties of an Old House C. D. Durkee & Co., of 2 and 3 South Street, New York City, will have 100 per cent more space than they have occupied at any previous Motor Boat Show, and their exhibit for 1910 will undoubtedly be their banner showing. In addition to a complete line of marine plumbing, they will have a cushion and fender department, in which the very latest in cushions of different fabrics will be shown, and also a department of steering gears, in which the various types of steering devices for both motor and sailing craft will be on exhibition. These will range from a quadrant steerer, adapted to the use of a little transom-stern cat, to a combination wheel and binnacle, suitable for the larger sized steam yact. Between these extremes will be a full line of wood, brass and galvanized steering wheels, auto pattern steerers, and the various devices known as side or engineer steerers, for use on open power boats. Among the new devices which will be shown will be the new Durkee bilge pump, for which patents are now pending. As will be noticed by the illustration, it bears a strong family resemblance to the celebrated Wurk-E-Ze but is a much more comfortable apparatus for transferring moisture from the bilge to the outside of the boat. The length of hose which serves as an in-take allows the foot rest of the pump being placed on a locker, seat or deck, which means that the operator thereof is not obliged to put a twist in his back to get down to business. For washing decks and cleaning off an anchor on moderate-sized craft, the ease by which the in-take hose may be dropped overboard while the operator is standing on the deck is a mighty taking feature.

Durkee's Patent Keyless Deck and Hand Hole Plate.



Durkee's Man Power Signal Whistle.

There will also be another new "stunt" in the way of signaling devices, in the shape of a whistle, which may be screwed to the coaming and operated by the lungs of the skipper. This will no doubt prove very popular among boat owners who have acquired a notable chest expansion by means of persistent blowing as to the speed of their respective craft.

A device which will fill with sadness the soul of the gentleman who "borrows" gasolene by the aid of a bilge pump is the Durkee lock deck plate, which must be opened by a jimmy, unless one is provided with the proper key, and this is apt to be productive of rather more noise than the gentleman in need of gasolene is particularly desirous of creating.

Another type of deck plate will also be shown. This is likewise one of the Durkee products, and is a deck plate, the cap of which may be inserted without the use of a key of any kind. Instead of a thread to hold it in place, a couple of springs, actuated by studs in the flange of the cap, fit into a groove in the plate, and it may be inserted or removed instantly. This plate, in the 4-inch size, makes a particularly good hand-hole plate for covering the supply valve at the gasolene tank, which in many open craft can be approached only by removing the portable bulkhead.

More Buffalo in the Garden than at Bronx Park In space F, on the arena floor in Madison Square Garden, at the New York Show, the Buffalo Gasolene Motor Company, of Buffalo, N. Y., will show a representative array of Buffalo engines, the line consisting of twenty-two different engines in the regular, heavy-duty and high-speed types, on which the Buffalo Gasolene Motor Company bases its claim of "an engine for any size or sort of boat."

At the New York Show there will be eight Buffaloes. As was to have been expected, after their remarkable success with their speed engines last year, the Buffalo people have produced two new speed engines for 1910. One of these is a 4¾ by 5, four-cylinder engine, rated at 25 horsepower. They call it the Buffalo Auto-Marine Engine, and it was placed on the market to fill the demand for a lightweight, high-speed engine, of a smaller size than the Buffalo four-cylinder 60 horsepower. It is a marine adaptation of an engine the company has been building in large quantities for one of the best-known automobile concerns in the country. It has been admirably adapted for marine work, and has the regular Buffalo ring-oiler system for crank-pin lubrication, together with mechanical lubricator, which system

Durkee's Patent Thief-proof Deck Plate.

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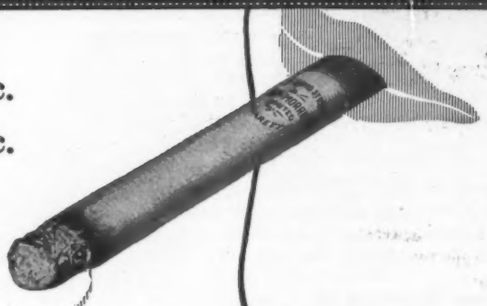

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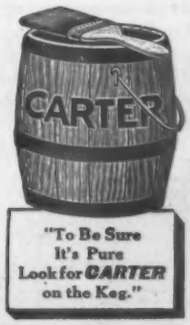

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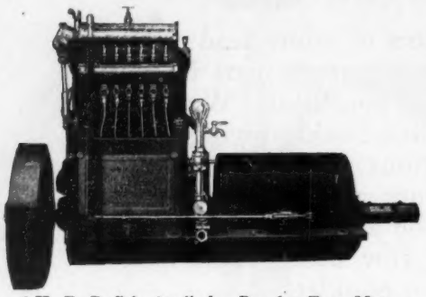
proved so effective on the Buffalo speed engine in the champion Hoosier Boy. The other new Buffalo speed engine is an eight-cylinder motor of an improved V-type, which will not only give extremely high power in concentrated space—it being but little more than half as long as upright types—but will provide the valuable advantage of a much lower center of gravity than any other type of engine affords. The cylinders, which are cast in pairs, are ranged in sets of four on a side, the sets being at an angle of 90 degrees from each other and 45 degrees from the perpendicular. This engine is rated at 225 horsepower, which is Buffalo rating, and well below what it really will be. All the eight cylinders operate a single four-throw crankshaft. Valves are of mushroom type, of large area, and on same angle as cylinders. All are operated by a single cam shaft in the upper corner of the crank case. The clutch is a special one, designed for a high-powered speed engine. Pistons are extra long. The cylinders are staggered, and the connecting rods from two opposite cylinders operate on one crank pin. To obviate any possible contact between the two connecting-rod boxes on the crank pin, the pin is turned with a double fillet, which provides a separation on the bearing surface.

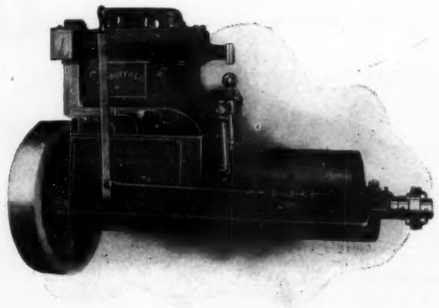


3-H. P. Buffalo 2-cylinder Regular Type Motor.

The crankshaft is extra large, in order to gain additional bearing area on the crank pins. The crankshaft is drilled through laterally to eliminate excessive weight. Oil is forced through the hollow shaft and out on the bearing surfaces—a small pump taking care of this part of the lubrication; the cylinders and other parts being taken care of from mechanical lubricators.

Besides these new Buffaloes at the New York Show there will be a Buffalo 90-horsepower, six-cylinder speed engine—it was a six-cylinder engine of this type that made the Hoosier Boy champion of the Great Lakes and Central West—a 3-horsepower, two-cylinder of the regular type; a 10-horsepower, four-cylinder of the regular type; a 12-horsepower, two-cylinder of the heavy-duty type; a 24-horsepower, four-cylinder of the heavy-duty type, and a 3-horsepower combination outfit.

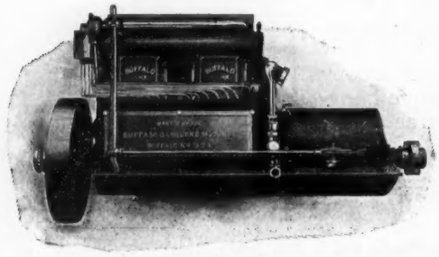
This combination outfit was designed especially as an auxiliary outfit for large yachts, but is also adapted as an independent lighting and pumping plant for homes and factories. The outfit consists of a 3-horsepower, two-cylinder Buffalo engine, with an electric generator, direct connected, and on the other end a two-plunger pump—one pump for water and the other for air. If desired both plungers can be adapted for water. The outfit is so arranged that full engine power can be used on either the generator or pumps alone. The generator has a capacity of thirty 16-candlepower lights. Using just one plunger of the pump for water, there is a water capacity of 865 gallons per hour to a height of 50 feet.



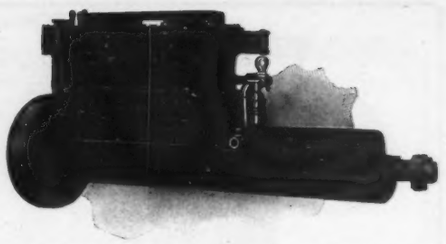
12-H. P. Buffalo 2-cylinder Heavy-Duty Type Motor.

Two New Semi-Speed Models of an Accessible Engine

The exhibit of the Bridgeport Motor Company will be located in Section T. A larger space has been taken than they have had in former years, in order that the complete line of their well-known Bridgeport motors may be exhibited. The exhibit will include 2½, 3½, 5½, 6½ and 9-horsepower single-cylinder models, and 5, 7, 12, 14 and 18-horsepower double-cylinder models, and a 27-horsepower three-cylinder model. All of the foregoing are of their regular medium weight, medium speed style, and equipped with the original Bridgeport make-and-break sparking device. These medium speed motors are built especially for ordinary pleasure boats, cruisers, auxiliaries and the smaller commercial craft. Their cylinder volume is of more than average capacity, to provide great power, without excessive propeller speed. Propeller speeds range from 400 to 500 revolutions per minute, which allows the use of a large, powerful propeller, and provides against excessive wear and tear on the working parts.



24-H. P. Buffalo 4-cylinder Heavy-Duty Type Motor.



10-H. P. Buffalo 4-cylinder Regular Type Motor.

Two new models will be shown in what is termed the semi-speed type, one a two-cylinder motor, 4½-inch bore by 5-inch stroke, rated at 8-10-horsepower, and the other, three-cylinder model of the same bore and stroke, rated at 12-16-horsepower. The propeller speeds at from 500 to 600 revolutions per minute. These semi-speed models are fitted with jump-spark ignition, and will undoubtedly meet instant favor amongst those requiring motors of this class.

The general construction of the Bridgeport, "The Motor that Motes" remains about the same as heretofore, and the general appearance denotes simplicity and substantiability. On looking over this motor, one is instantly impressed with the ease at which the important working parts may be removed for inspection or adjustment, both on the single and multiple-cylinder models. The igniter is placed on a removable flange, so that it is quickly accessible for inspection. The cylinder heads are detachable, and two extra large hand-hole plates are provided in the base of the cylinder, and the removal of same permits inspection of the lower bearing of the connecting rod, or its removal, and by means of the detachable cylinder head the piston and connecting rod may be lifted out without disturbing the cylinder itself. By this means the multiple-cylinder models are each independent of the other, and it is not necessary to disconnect any of the outside pipe connections, etc.

The working parts are all of very substantial design and embody the best of materials. The crankshafts are of nickel steel with ground bearing surfaces. The piston wrist pins are of steel, hardened and ground. The connecting rod is entirely of bronze, with detachable lower bearing, which allows of same being removed for adjustment, etc., without disturbing the cylinder or piston. All bearings are of the finest bronze-bearing metal, and of very liberal proportions.

In the multiple-cylinder models the cylinders are cast separately, and are what is known as the split-base type. A one-piece iron bedplate is patterned to form the lower half of each cylinder, and to this the cylinders are securely bolted, an exceedingly practical method of construction, which provides absolutely perfect alinement of the crankshaft bearings. The exhaust outlet is water-jacketed. The single-cylinder models are equipped with the latest style two-feed oil cups. The multiple-cylinder models are provided with automatic-pressure feed oilers, and the proper lubrication of all bearings has been carefully thought out.

Some Examples of Twentieth Century Progress

The Twentieth Century Motors to be exhibited by the New York Yacht, Launch & Engine Company, of Morris Heights, New York City, will consist of one four-cylinder, 6½ by 8½-inch, 30-40-horsepower; one three-cylinder, 5¾ by 7¼-inch, 18-23-horsepower, and one two-cylinder, 5¾ by 7¼-inch, 15-horsepower.

These engines as exhibited will be the 1910 models of the Twentieth Century Motors, and are also built in many other sizes.

The 12-horsepower engine to be shown is of the medium weight, slow speed type, has all the latest improvements in gas-engine building, and is equipped with a low-tension magneto, multiple-force feed lubricator, water-jacketed exhaust pipe, planed bevel gear reverse running in oil, carburetor, which has hot water-jacketed throttle attached, and controlled by a governor. The three-cylinder, 18-23-horsepower engine is similar in construction and equipment to the 12-horsepower, except that is a three-cylinder motor. The 30-40-horsepower engine is like the engine that was tested by the Government at Norfolk, Va., and is equipped with removable inlet valve cages, magnetic system, force-feed oiler, etc.

90-H. P. Buffalo 6-cylinder High-Speed Type Motor.

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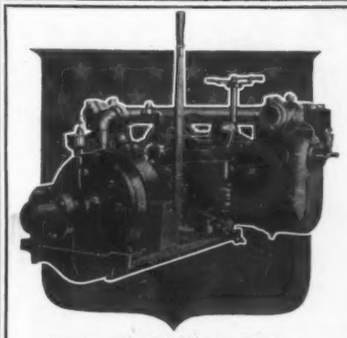

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We shall be mighty glad to tell you all about it.

Engines for All Marine Duties.

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"Brownie" (built by Lindley) at 20 miles an hour.

If you want a speed boat for next season—one that will show her heels to ninety per cent of the craft you will meet on lake or river, without regard to size or horse-power, consult LINDLEY. He has made a study of speed problems for years past, and is now turning out cup winners at from $700 up, in any size or horse-power desired. Give us an idea of what you want, and we will do the rest.

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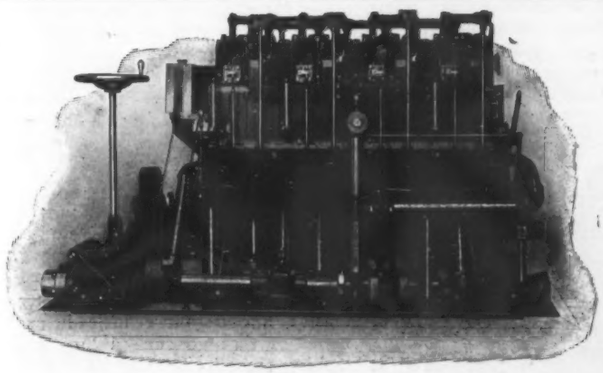

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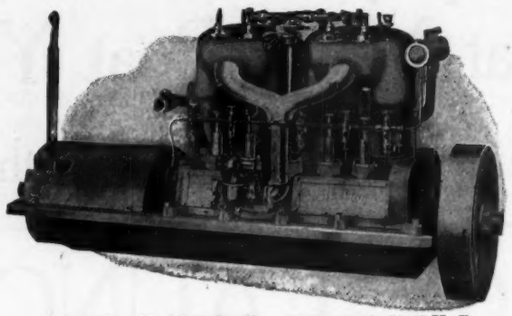
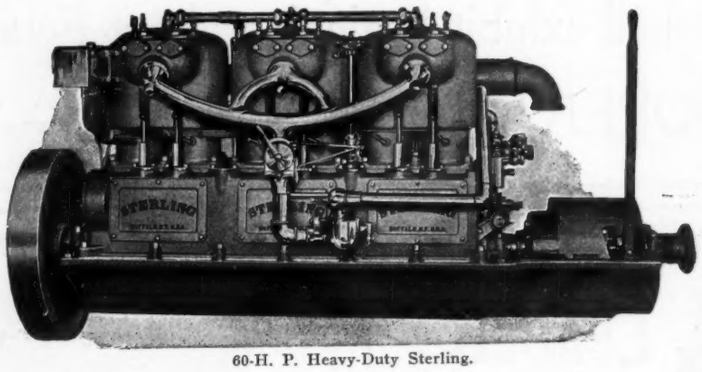
Several Splendid Sterling Surprises The Sterling Engine Company, of Buffalo, N. Y., will occupy space at the end of Sections W and T, so that their exhibits may be seen from both center and side aisles. Therein will be displayed one of their 8-horsepower, two-cylinder, four-cycle engines, of 4¾-inch bore by 6-inch stroke. This engine weighs 650 pounds, including reverse gear, which is of the Sterling Company's own make, and is contained in an extension of the lower base. It was designed for heavy-duty work, especially for the use of fishermen. They are also building a 12-horsepower which is a facsimile of the 8, but proportionately larger. This machine is a two-cylinder, four-cycle, 5½-inch bore by 7-inch stroke, weighs 900 pounds, and is designed for heavy-duty work.



4-Cylinder, Model B Sterling, 18-25, 35-40, 30-45-H. P.

The 18-25-horsepower Sterling engine is a four-cylinder, four-cycle, 4⅜-inch bore by 5½-inch stroke, and built with both iron and aluminum base. With iron base it weighs 690 pounds and with aluminum base 580 pounds. This makes an ideal engine for family launches, cruising or speed boats. The 25-40 and 30-45-horsepower machines are both of the same construction as the 18-25 and of the four-cylinder, four-cycle type. The former is 4¾-inch bore by 5½-inch stroke, weighs 700 pounds with aluminum base and 800 pounds with iron base. The 30-45-horsepower is four-cylinder, 5½-inch bore by 6-inch stroke. This machine weighs 800 pounds with aluminum base and 925 pounds with iron base.

In addition, the Sterling Company is building two sizes of six-cylinder engines of the same model, one being a 35-55-horsepower, the same as will be shown at New York. This engine is 4¾-inch bore by 5½-inch stroke, and weighs 825 pounds with aluminum base and 975 pounds with iron base. The 45-65-horsepower is a six-cylinder engine, 5½-inch bore by 6-inch stroke, and weighs 950 pounds with aluminum base and 1,125 pounds with iron base. With aluminum base it is an ideal speed engine, and with iron base makes a very fine power for fast day cruisers.



60-H. P. Heavy-Duty Sterling.

Their 40-horsepower engine is a four-cylinder, four-cycle machine, 6½-inch bore by 8-inch stroke, weighs 2,000 pounds, and is designed for tugboats or heavy cruising boats. It has a mechanical oiling system and a plunger water circulating pump, bilge pump and air pump at the rear of the machine. This is the same machine as was installed in Nereides II of Bermuda fame. There will also be shown a 60-horsepower, six-cylinder engine of this same type, weighing 3,100 pounds. The 18-horsepower heavy-duty engine is of practically the same construction as the 40 and 60-horsepower, but is a two-cylinder, four-cycle, 6½-inch bore by 8-inch stroke, and weighs 1,650 pounds.

All Sterling engines are equipped with water-jacketed exhaust manifolds, cylinders cast in pairs, valves mechanically operated and on opposite sides of the machine, and there are very few joints, bolts or nuts in Sterling construction, the parts being very accessible. There is also an absence of exposed gears or trappy mechanisms. Another good feature is the oil groove that runs around the lower base of the engine that intercepts any oil that might ooze from the side of the machine, and conveys it to a partition in the rear of the base instead of allowing it to run over the engine-room floor or into the bilge of the boat. All of the reverse gears in their machines are of the planetary gear type, of the Sterling Engine Company's own construction, and are very positive and powerful.

Among the notable boats equipped with Sterling engines may be mentioned the following: Mariada, a 60-foot raised-deck cruiser owned by Richard M. and Robert More, Jr., of Bridgeton, N. J. She is equipped with a six-cylinder, 60-horsepower, Model D, heavy-duty Sterling engine, and has made remarkable speed for a boat of her dimensions. She has been used extensively for cruising, making one trip of 1,200 miles, and has proved herself a fine sea boat under all conditions.

A United States sailing cutter attached to the United States ship Salem. She is 33 feet long and equipped with a two-cylinder, four-cycle, 12-horsepower heavy-duty Model C Sterling engine. The weight of the hull, without engine or tanks, is 7,400 pounds, and on her trial trip with a crew of twelve men she exceeded the expectations of the naval engineers by making 7.22 knots per hour. Five runs were made, with practically no variation in this speed.

The Elpajaro, 33 feet long by 7 feet 9 inches beam, owned by the Mexican Petroleum Company, Mexico. Equipped with a 30-45-horsepower, four-cylinder, Model B Sterling engine, she was the fastest boat of her size and power on Massachusetts Bay, where she was tried out last summer before being sent to Mexico. Average speed 14 miles per hour. This season she will be used in Mexican waters.

Friendship VIII, owned by H. L. Friend, of Boston, Mass. She is 43 feet long by 8 feet beam and equipped with a 35-55-horsepower heavy-duty Sterling engine and makes 12 miles per hour. Mr. Friend cruised extensively with this boat during 1909 and has under way a new boat for 1910 to be equipped with a 60-horsepower heavy-duty Sterling engine.

J. H. Sutherland, of Kingston, Ont., is the proud owner of the fast runabout Minoru. She is 32 feet long, 5 feet 5 inches beam, and is equipped with an 18-25-horsepower, Model B, four-cylinder Sterling engine. Mr. Sutherland said that the Minoru was one of the most admired boats on the St. Lawrence River last season.

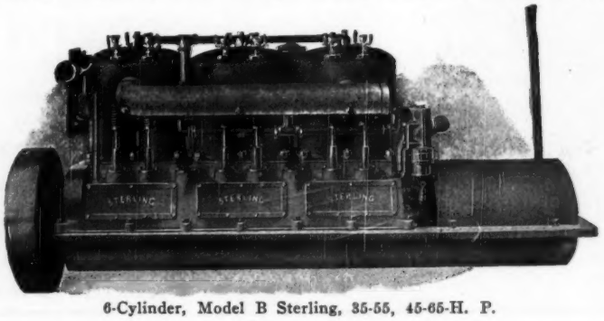
The Byrossl, designed and owned by Charles D. Mower, naval architect, of New York City. She is 30 feet over all, 7 feet beam, 28 inches draft, 500 pounds displacement, and equipped with an 18-25-horsepower, four-cylinder, Model B Sterling engine, makes 10 miles an hour. She turns a propeller 21 inches diameter by 24-inch pitch 600 revolutions per minute.

The Sterling Engine Company are distributing their very complete 1910 advance catalogue illustrating and describing The Engine of Quality. It is an attractive thirty-two-page catalogue, and anyone wishing to know more about Sterling construction will find valuable information in its pages. A copy will be mailed to anyone mentioning YACHTING upon receipt of request.

A Selling Agency and its Two and Four Cycle Line of Engines Bruns, Kimball & Co., Inc., of 126 Liberty Street, New York, and 327 Central Avenue, Jersey City, will exhibit the four-cycle open-base Campbell motors and the two-cycle Essex engine, for which they are the sales agents. They will also show, in very attractive form, the Perfex waterproof ignition system.

There will be constantly on hand in this concern's booth during the show some member of the firm, who will book orders and take care of the listment of the high-class craft which they have for sale at their yard at the foot of East Fortieth and Forty-first Streets, Bayonne, N. J. This yard, in which they have stored ready for inspection a large number of craft for sale, is equipped to haul out all sorts of boats and ready to do any style of repair and installation work.

It is rumored that this firm has closed with the Progressive Manufacturing Company, of Torrington, Conn., for the agency of the Eagle engine, and that they are about to remove their office to more spacious quarters in the near future.



6-Cylinder, Model B Sterling, 35-55, 45-65-H. P.

Electrical Helps for the Boat Owner The exhibit of the American Ever Ready Company, at 304-322 Hudson St., New York City, will cover a pretty extensive line of those little helps and novelties that go such a long way in making smooth the way of the motor boat owner. The exhibit in Block C will comprise a full line of the Ever Ready flashlight—one of those devices

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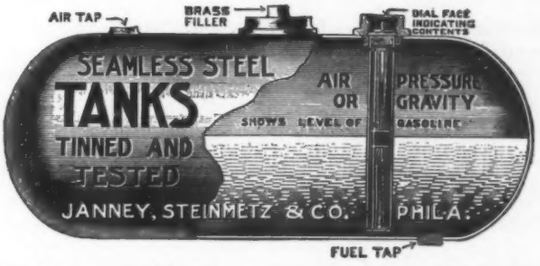
A LEAKY BOAT IS PRETTY BAD BUT

A LEAKY TANK IS WORSE



Gasoline is mighty dangerous stuff, so when your Riveted Makeshift Tank springs a leak, and your boat is burning, just send us a wireless order

C-Q-D FOR A LEAKLESS TANK P-D-Q

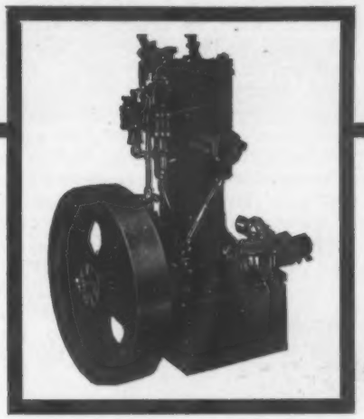
Let Us Fit You Out Right Now?
Think This Over—Mr. Boat Owner!

SEAMLESS STEEL LEAKLESS TESTED **TANKS** ALL SIZES FROM LITTLE TO BIG

WRITE FOR NEW CATALOGUE

JANNEY, STEINMETZ & CO.

Main Office, PHILADELPHIA Branch, NEW YORK



Service

ISN'T that really what you want from an engine? The ability to put in long stretches off shore and give you the feeling of knowing that she is going to keep on going. : : : : : :

Royal Engines provide such service. : :

In them you will find all that is latest and best in marine engine construction and many features that will interest you. : : : : : :

READ WHAT A CUSTOMER SAYS

The Royal Engine Company,
Bridgeport, Conn.

Gentlemen:—

In reply to your letter, will say that I am entirely satisfied with the Royal Engine that I have purchased. The engine has done all you said it would do and I am very much pleased with my first season of motor-boating. I shall always remember that my first engine was a Royal and it was O. K.

Very truly yours.

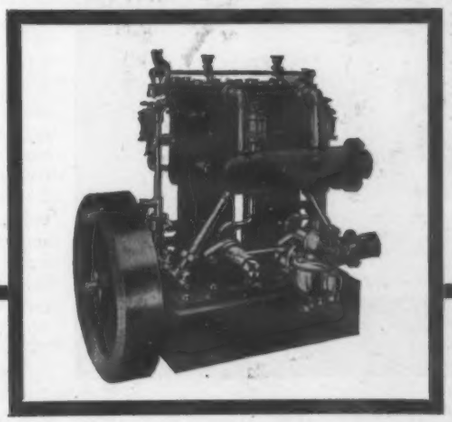
Somerville, Mass. (Sgd.) DAVID F. O'BRIEN

SEND FOR CATALOG

WE ARE TO BE IN SECTION G AT THE N. Y. SHOW

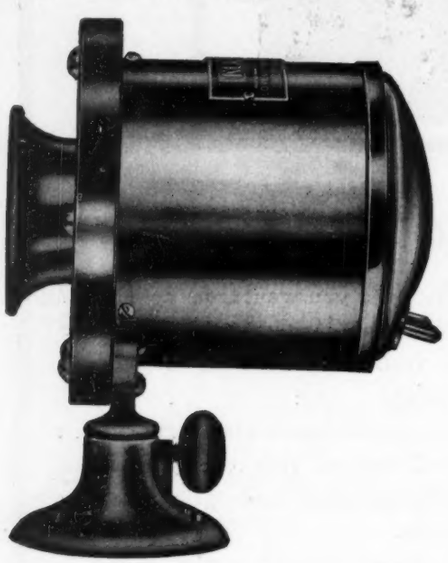
THE ROYAL ENGINE

The ROYAL ENGINE CO., 157 Housatonic Ave., BRIDGEPORT, Conn.



which can be poked into a locker, up against the carburetor, or brought in close contact with a suspicious joint of the gasolene feed pipe, without any tendency whatever to elevate things generally.

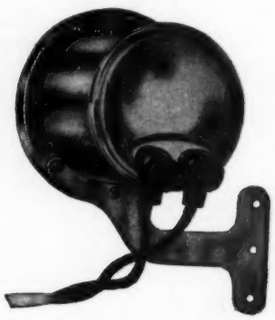
Among the flashlights shown will be the new types known as Osram Lamps, which possess increased candle power and are particularly economical in battery consumption. They will also show a pretty complete line of very moderate-priced, but accurate, battery testing instruments, consisting of ammeters, voltmeters, combination volt-ammeters and their new low-reading ammeter, constructed for the purpose of measuring coil, current consumption. These instruments are about the size of a watch, light in weight and very convenient. They will also show some very taking novelties in the way of electric cigar lighters, which may be attached to the bulkhead for use in motor boat cabins. These are particularly serviceable, insomuch as they tend to prevent and discourage the throwing of matches around the boat's cabin.



The Klaxonet, which measures but 4 x 5 inches and runs on four dry cells.

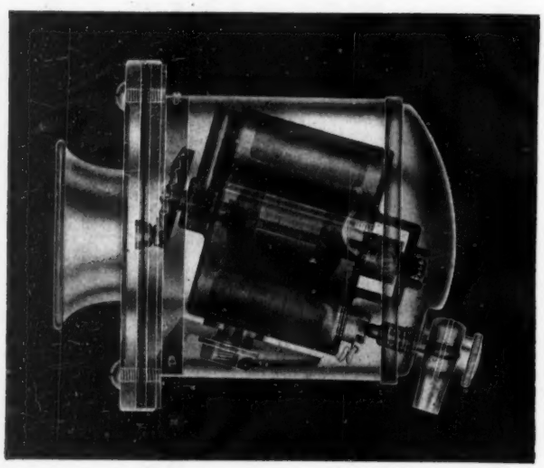
Another attractive device is an electrically-illuminated tachometer.

Many times a very powerful light—to be used for a few minutes only—comes in mighty handy on an open launch unprovided with a searchlight. That's why the Ever Ready Company's 5½-volt portable electrical lamp, No. 2,604, will attract considerable attention of a favorable nature. In this lamp is a five-cell battery, and the light is produced by a 5½-volt miniature bulb, with a powerful reflector behind and a strong lense in front of it. By the simple snap of a switch the light is turned on and off, and as an aid to picking up a mooring on a dark night, or navigating a narrow runway, it will be found worth many times its cost. Both battery and lamp are easily and quickly removable, and it is very compact and thoroughly reliable.

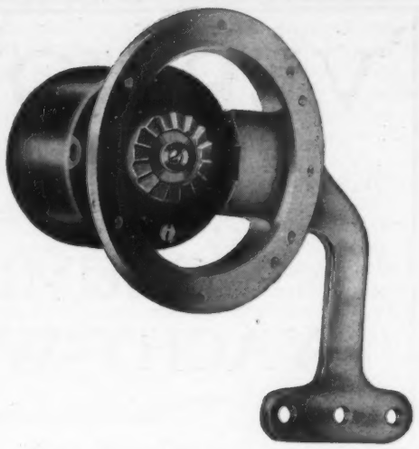


How electrical connections are made in the Klaxonet.

A New Marine Signal The Lovell-McConnell Manufacturing Company, of Newark, N. J., will show for the first time their new signal, the Klaxonet. It embodies all the essential elements of the well-known Klaxon, but is smaller in size, simpler in form, and occupies so little room, and is, moreover, so light in weight, that it will appeal to every owner of a moderate-sized boat. It has the characteristic Klaxon note, sharp and metallic; and while it produces but 60 per cent of the volume of sound of the regular Klaxon, it is sufficiently higher in pitch to allow of a carrying power nearly equal its larger brother. It is wound for 6 volts, but consumes only three amperes, as against the Klaxon's eight. The fact that it may be worked satisfactorily on four dry cells will appeal to those motor boat owners who arrange their dry batteries for ignition work in multiple series of four. As will be seen by the illustration, the apparatus is very neat and compact, and all the mechanism is enclosed in a cylindrical casing, 4 inches in diameter by 5 inches in length, from the front of which projects a small flaring mouth or tube, while to the rear are attached wires conveying the current. For marine use it is generally supplied with a base screwed to the deck, into which a supporting rod drops, and is held in place by a thumb screw. It may also be obtained with a fixed bracket that can be screwed to the coaming. The mechanism, which is identical in principle with that of the Klaxon, is somewhat different in arrangement. A thoroughly well-made electric motor, identical in principle of construction with those used on electric locomotives, revolves a tooth-faced wheel against a stud situated in the center of a special steel diaphragm. There are fifteen teeth on the face of this wheel or rotor, and as the motor has 2,000 revolutions per minute there are 30,000 vibrations of the diaphragm per minute.



Ghost view of Klaxonet, showing motor, rotor, vibration disk and stud on same.



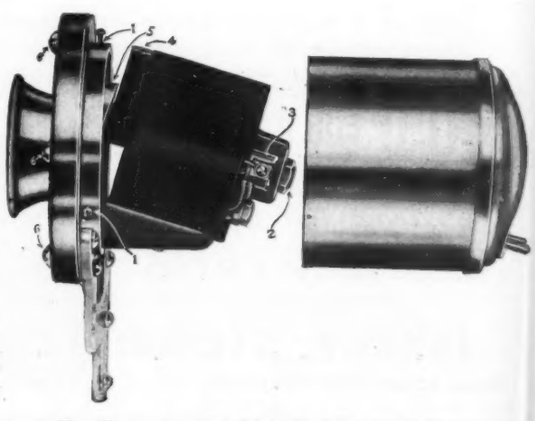
Klaxonet, showing toothed rotor and disk frame.

It is very compact, and is undoubtedly, next to the regular Klaxon, the most powerful signaling device produced to-day. Each Klaxonet is equipped with Lacoste terminals, which insure absolute insulation of the points of contact, and its great effectiveness, in combination with the fact that it may be operated in connection with the boat's regular storage or dry battery ignition set, and that it may be placed anywhere, and by means of extra push buttons operated from any portion of the boat, is bound to make it a hot favorite during the year 1910.

The Klaxonet is finished in brass, nickel, or a special black polished enamel, so that it will harmonize with the trimmings of any boat. It can be placed anywhere on the deck, coaming or cabin roof, removed instantly and stowed in the locker, and the electric connections can be made and unmade in a couple of seconds. The manufacturers claim it is the first moderate-priced and compact signaling device that gives real, practical service, and may be installed without piping, tanks and the labor and inconvenience of adjusting special fittings.

A New Addition to a Well-Known Line The Fairbanks-Morse marine exhibit will include both standard heavy-duty, four-cycle engines, which are designed for commercial purposes, as well as the lighter two and four-cycle types more especially designed for pleasure boats and launches.

Their new type "G" engine embodies several distinct features in its design which make it exceptionally convenient and efficient. These engines are regularly fitted with ground crankshafts, cylinders, pistons and rings. They are equipped with a new style improved carburetor. The bearings are brass, babbitt-lined, adjustable and removable. The lubrication is of the positive forced-feed type, with an oil reservoir on the side of the engine cylinder, so arranged that the oil level is always visible. Either make-and-break or jump-spark ignition can be furnished with the two-cycle engines. These engines have an enameled finish, while the type "G," in addition, has a nickel-



The Klaxonet separated into its component parts.

Patterson Wireless Dry Battery System

"You Screw the Battery in—We've Done the Rest."

You'd hardly ask your Battery Set to work like this—but if you'll use the "Patterson System" when the emergency requires, it will do it.

This System revolutionizes the old methods of Battery Sets—its fundamental principle is a Screw Top Cell Unit, screwing into a solid hard rubber plate, which plate forms a waterproof cover for the entire outfit; batteries are suspended from the plate. There can be no loosening connections—no bad contacts—no troubles from dampness and corrosion!

A Wireless Battery Holder will not only maintain a Set of Batteries at HIGHER AMPERAGE, but will in a year or so save the Motor Boat owner its entire cost from the greatly increased life each Set of Cells will give, because of the Holder's scientific design for their protection and economical maintenance.

A WIRELESS DRY BATTERY HOLDER will last a lifetime.

Emergency Clips are provided so old style "Binding Post" Cells can be used any time "Screw Top" Cells are not at hand. Send for Bulletin 37.

STANLEY & PATTERSON, 23 Murray St., New York

NOTE.—*Battery Cells to fit* "PATTERSON" WIRELESS DRY BATTERY HOLDERS *are now regularly manufactured by all prominent makers of Dry Cell Batteries throughout the country. When ordering Batteries simply specify that the* "PATTERSON" SCREW TOP CELL *is required in place of the old Binding Post Type of Cell.*

A Talk with Thoughtful Business Men of America

Are the Politicians Meddling in your Business?

Are you puzzled over the rising cost of living, the Sugar Trust scandals, railway regulation, the relation between the white slave traffic and our municipal governments, the Ballinger muddle, the Standard Oil decision?

Surely Business Men are not All Bad—You Think?

With the Customs Service debauched by the big importers, with the tariff forced up by the big manufacturers, with our national resources looted by the financial pirates, do you sometimes wonder what this country is coming to?

Down in your Secret Heart of Hearts—

Do you sometimes feel that *the* problem—the nation-building problem—will never, *never*, be settled by sentimental reformers.

Sometimes does your Head Just Ache with It All?

Sometimes do you Feel like Letting It All Slide—and Going Fishing?

THEN LISTEN!

One Thoughtful Man has Solved the Problem

He has worked his way through the tangle which is puzzling all America, and has found the truth.

His name is **Charles Edward Russell.**

In a Series of Epoch-making Articles in *Success Magazine* Russell is Setting Forth the First Intelligent Analysis of *the* Problem.

The Power Behind the Republic

AND NOW—

If you are a Stupid, Self-satisfied Citizen—

stop right here. If you are an intelligent—but puzzled—citizen you have simply got to read these articles. You won't be able to evade them. The ideas they contain will seek you out and hammer themselves into your brain. Simple as truth, clear as light, Russell has here formulated the only proposition ever offered for reforming our business and political structure which business men can take seriously—*as business men.*

FOR EXAMPLE—READ THIS

"What Business Wants It Will Have"

"—because, in the present condition of society, the very first necessity overtopping all else is that Business shall go on; a great, primal, blind, resistless universal intelligence keeps driving it on. It will trample over whatever is in its way as a great herd of buffalo on the plains used to trample over a wayfarer—without the least ill-will, unconsciously, unintentionally, and merely because it must go on. Nothing must be allowed to stop it; under present conditions

"Business is the Nation's Heart!"

These Articles—Every One a Foundation Stone in the New America—are Appearing Monthly in

SUCCESS MAGAZINE

10c. A COPY $1.00 A YEAR

(Patented Dec. 22-'08. Other Patents Pending)

This Chest is Free with Your First Order for Sargent Cigars

It is made of oak, mission style, glass and porcelain lined; capacity 100 cigars. It is the best chest on the market for preserving cigars in perfect condition regardless of atmospheric conditions. 50,000 sold in 1909.

Sargent Cigars

Seven delightful brands of all Havana or Seed and Havana cigars. We're sure that you'll like our cigars as thousands of other smokers do—but—should you consider your purchase unsatisfactory in any particular, it can be returned at our expense and your money refunded.

Do You Want One of These Chests

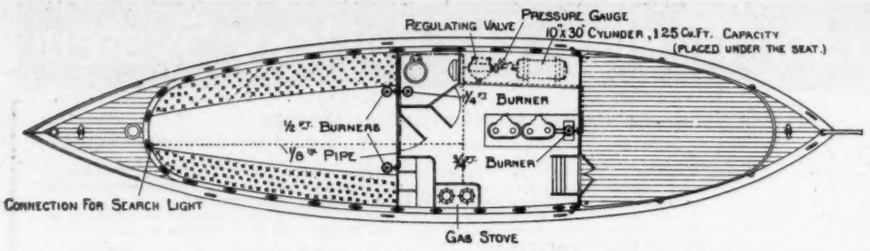
for your home, office or yacht? If so, write now for particulars and full description of the chest and cigars, price list, telling us the kind of cigars you like best.

Write Today for Particulars

We also make our patent cigar chests in larger sizes and in several choice woods at reasonable prices. You will never know what a perfectly preserved cigar tastes like—or how delightfully it smokes, until you own a **Sargent Cigar Chest.**

SARGENT CIGAR CO.

805 Water St., Bridgeport, Conn.



Plan of installation of Commercial Acetylene Company's safety storage system for lighting and cooking on Mr. B. K. Bloch's 40-foot cruiser Edith.

plated, removable cylinder head. Both the type "G" and the type "E" engines are split along the line of the crankshaft, making it very convenient to take them apart, if necessary. These engines are equipped with a patented fly-wheel, which is constructed so that a starting crank is unnecessary.

The entire exhibit will be of a very comprehensive character, and so arranged that it is interesting to the purchaser of almost any type of marine engines.

A Safe, Brilliant and Convenient Lighting System In space No. 5 will be found the exhibit of the Commercial Acetylene Company, of 80 Broadway, New York City. This concern has for some years past supplied complete lighting equipments for some of the largest steam motor and sailing yachts, as well as houseboats.

Those of our readers who have noticed the size and importance of many of the craft in which this system has been installed, may have formed the erroneous impression that the Commercial Acetylene's proposition was adapted only to the use of large craft. To correct this error, if such exists, and demonstrate the advantages of this lighting plant, and its possibilities in the way of convenience and accessibility, we are reproducing herewith the installation plan in two 40-foot cruisers of the New York Yacht, Launch & Engine Company's Sea Rover type.

In the Edith, owned by Mr. B. K. Bloch, of New York City, a 10 by 30 cylinder, of 125 cubic feet capacity, is placed under the transom in the engine room. Both tank and pressure regulator are horizontally installed, and a ⅛-inch pipe line extends athwarthship under the engine-room floor, connecting with a gas stove of the two-burner, hot-plate type. Pipe lines connecting with the main supply pipe lead to a ¾-foot burner at the center of the after engine-room bulkhead, to a ¼-foot burner in the toilet room, and two 6-inch burners on the after bulkhead of the main cabin. A deck connection is also made forward for the acetylene searchlight with which the boat is equipped.

On Charles L. Weber's boat a rather different installation has been made, and two cylinders of the same capacity have been used, because this yacht is designed for longer cruises. The tanks are placed on end, side by side, and connected up to one pressure gage and one regulating valve, all of which is installed in the after portion of the toilet room. This is what is termed the "double-cylinder installation." From this is led an ⅛-inch pipe connection to a gas stove similar to the one described above, and to two ⅜-foot burners, which illuminate the engine room. There is a ¼-foot burner in the toilet room, while a ⅜-inch pipe, passing around the sides and front of the forward cabin, underneath the floor, connects with four ⅜-foot burners; which renders this a wonderfully well illuminated cabin. It will be seen that not only the lighting, but also the cooking, on board these boats is by means of acetylene gas.

The gas tanks are of heavy seamless steel, with a tensile strength of 60,000 pounds, and these tanks are themselves entirely filled with asbestos discs saturated with acetone, which has an affinity for acetylene gas. In other words, the acetone absorbs twenty-five times its own volume of the gas, increasing the storage capacity of the tank tenfold. The acetylene is dissolved in the acetone, the acetone absorbed in the asbestos, which eliminates all danger from explosion. When the pressure is released at the stud valve the acetone releases the gas, the acetone remaining in the cylinder. The pressure gage indicates the pressure or the amount of gas in the cylinder, and the regulating valve reduces the pressure from that in the tank to the proper burning pressure, so that it is never necessary to regulate the flame. The pressure at the burner is always the same, no matter how much or how little gas there is in the tank.

When the gas supply is running low, or is exhausted, the company's nearest supply depot is notified, and a new tank of acetylene is shipped, thus insuring a constant supply. Charge is made only for the gas, and the consumer pays the transportation charges on the empty cylinder, which is returned to the nearest plant, and on the fully-charged one which he receives.

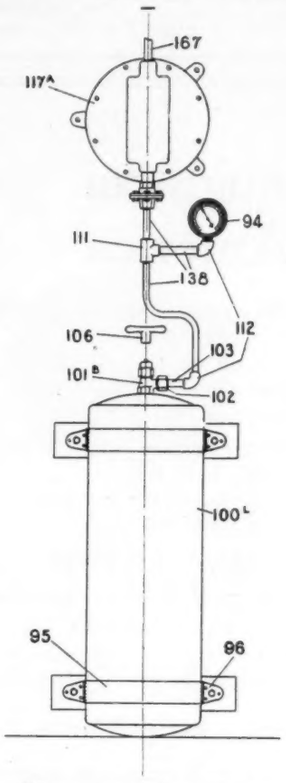


Diagram of Safety Storage Tank.—94, 3-inch nickel gauge; 95, cylinder band, brass; 96, lug for No. 95; 100L, 10-inch x 30-inch cylinder; 101B, stud valve; 102, nut for stud valve; 103, nipple for stud valve; 106, key for stud valve; 111, ¼-inch steel tee (high pressure); 112, ¼-inch steel ell; 117A, regulating valve; 138, ¼-inch extra strong pipe; 167, ⅜-inch galv. iron pipe.

A Raised-Deck Cruiser and a Runabout of Manganese Bronze The Welin Davit and Lane & De Groot Company will exhibit two launches of novel construction on the main floor. As builders of high-grade metallic boats for many years, this concern has been well in touch with the ever-increasing demand for metal launches. This exhibit embodies radical departures from the type of construction hitherto pursued, as determined upon after a considerable period of experiment and preparation.

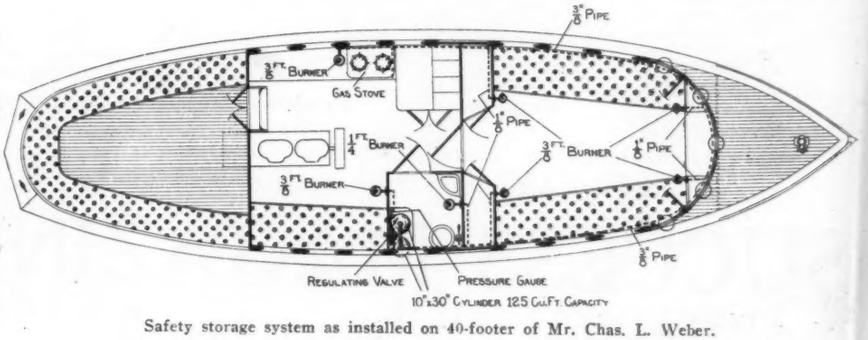
In the first instance they have adopted plating of the highest grade of Parsons Manganese Bronze. The advantages of this material for its non-corrosive and non-fouling properties are at once apparent. The plating is worked in wide strakes, double riveted with rivets of the same material, twenty to the foot, with felt between the laps to insure absolute tightness.

The keel, stem, stern post, etc.—of the highest grade selected oak to which the shell plating proper is fastened with brass screws—are sheathed with bronze and soldered at the joints in the same manner as employed in the best metallic lifeboat construction. To stiffen this plating, light but very closely-spaced oak, steam-bent frames are worked in after the shell plating has been entirely riveted and attached to the latter with U-shaped bronze clips. These clips are riveted to the shell direct, metal to metal, and no fastenings pass through the frames, thus obviating all danger of splitting the latter and the working loose of fastenings.

Stringers and clamps in long lengths are fitted in the same manner, and the whole forms a very strong but light hull. This form of construction also lends itself to the fitting of watertight bronze bulkheads to good advantage.

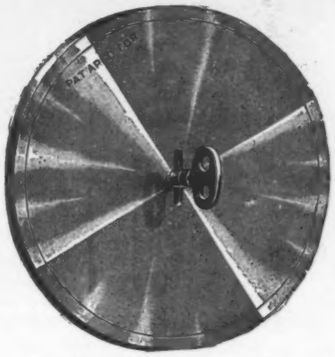
The larger launch to be exhibited is of the raised-deck, combination, fast, small cruiser and day launch type, and is of the following dimensions: Length over all, 36 feet; extreme beam, 7 feet 6 inches; extreme draft, 2 feet 6 inches. This boat has a nearly straight stem and sloping, rounded transom stern.

The raised forward deck, which has a rather high crown, is 9 feet 9 inches in length; it is fitted with a cowl ventilator and slide, to give access to the engine room below, which extends aft under the bridge deck. Two port lights on each side also afford light and air to the motor space. The bridge deck extends the full width of the boat for a length of 2 feet 6 inches. On it are located the steering gear and engine controls, within easy reach of the helmsman's seat, placed on the forward end of the main cabin house. The latter is of mahogany, with canvas-covered top, and is 11 feet 3 inches in length. Aft of the house is a large, self-draining cockpit, 9 feet 3 inches in length, with a 'thwartship seat in the stern, with a lazy-back against the after deck, which extends for 3 feet further aft. Below, the arrangement is as follows: In the extreme bow is a chain locker, separated from the engine room by a watertight bulkhead. In the latter space is located a 35-40-horsepower, six cylinder, 4 5/16 by 6¼, motor, fitted with low-tension magneto, with dynamo, 60-hour



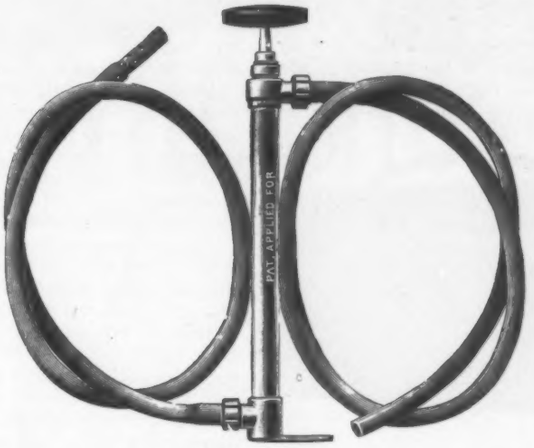
Safety storage system as installed on 40-footer of Mr. Chas. L. Weber.

Ask Your Dealer For These



Durkee's Patent Deck Plate,
Lock Pattern,
To Prevent Stealing of Naphtha.

When you want to make sure of getting the BEST in Marine Hardware and Supplies, specify DURKEES, and see that you get it.



Patents Pending

The New DurKee Bilge Pump, Latest and Best Pump Made

Enables You to Pump Your Boat while Seated on the Locker.

Durkee's Patent Keyless Deck and Hand Hole Plate, does not Require Key to Open or Close.

Send 16 Cents
For our Mammoth Illustrated Catalogue
—of—
Boat Fittings.

C. D. DURKEE & CO.

2 SOUTH STREET, NEW YORK CITY.

BRONZE MOTOR BOATS

LIGHTER—STRONGER—SAFER THAN WOOD
NON-CORROSIVE NON-FOULING

A-B-C Life Belt

Cork Life Belt

A-B-C Life Belts

Lightest, Smallest,
Most Efficient and
Durable Made.

APPROVED BY U. S. INSPECTORS

Will Exhibit
New York Motor Boat Show

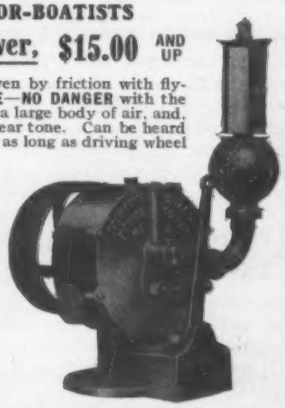
WELIN DAVIT AND LANE & DE GROOT CO.
17 BATTERY PLACE NEW YORK, N. Y.

AHOY! YACHTSMEN AND MOTOR-BOATISTS

Trimount Rotary Whistle Blower, $15.00 AND UP

An entirely new device—a rotary blower driven by friction with fly-wheel of the engine **NO TANKS—NO TROUBLE—NO DANGER** with the Trimount Blower Outfits. This blower throws a large body of air, and, with our special Bell Whistle, makes a loud, clear tone. Can be heard at a great distance, and the blast is maintained as long as driving wheel of Blower is in contact with fly-wheel of engine. No variation or falling off in tone as with compressed air system. Made in three sizes.

This outfit is very simple, nothing to get out of order. The Whistle can be placed on deck wherever required and the pull can also be located in any part of the boat. The Blower is made entirely of bronze and is extremely durable, compact and efficient.



Your Protection—Money Back if Not Satisfactory

MANUFACTURED BY
TRIMOUNT ROTARY POWER CO.
206A Summer Street, BOSTON, MASS.

You'll need our Hand Bilge Pump, made entirely of bronze. Capacity 10 gals. per minute

Makes Night Trips Safe as Day

—It's easy to pick up buoys at a safe distance; to make night landings by the intense light of

The Neverout SEARCHLIGHTS

—More Powerful Than Any Other Gas Searchlight

Back it up by the NEVEROUT SAFETY GAS PRODUCER, which instantly makes perfectly cool acetylene gas for searchlights and for interior or exterior lighting. Most economical, effective gas producer.

SEE US AT THE NEW YORK MOTOR BOAT SHOW

Rose Mfg. Company, Main Offices, 935 Arch St., PHILADELPHIA, U. S. A.

storage batteries, etc., which will give the launch a cruising speed of 13 miles per hour. There are also in this space the usual lockers, storage spaces and one pipe berth for crew. At the after end of the engine room is another watertight bronze bulkhead, directly aft of which are located the toilet room and galley, both equipped with the latest appliances. These two spaces both open off the main cabin, immediately aft. The latter is 8 feet in length, fitted with two transom berths, lockers, etc. Much attention has been given to light and ventilation, and the cabin, in addition to the usual skylights and hatches, is fitted with sliding windows of a new type, which will insure watertightness as well as plenty of light and air. The entrance to the cabin is from the forward end of the cockpit. Under the floor of the latter, and separated from the rest of the boat by watertight bronze bulkheads, are the gasolene and water tanks. The decks and trimmings of this boat are all of red mahogany, bright finished, and the interior is finished in white enamel with mahogany trim.

Motor Boat Outfit C-6. The original type.

Model L Battery Box for use in narrow locker.

On the top of the cabin a small life-raft is carried, made of a light, specially treated tropical wood, from which this firm make their special life preserver. This raft, while weighing only 80 pounds, will support a weight of 240 pounds, which is amply sufficient to keep twelve people afloat in case of accident.

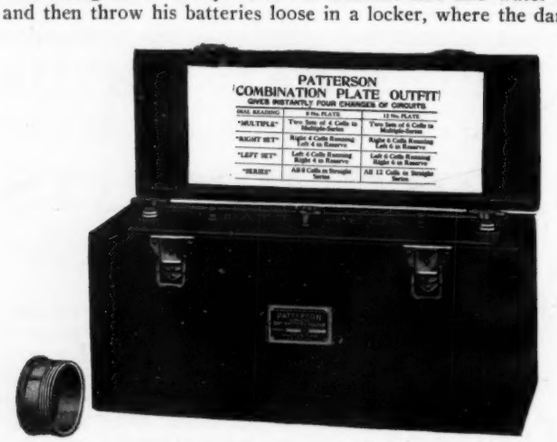
There is also shown a smaller bronze launch of the popular runabout type, 25 feet in length by 4 feet 6 inches, which has purposely been left in an uncompleted state, so far as motor installation and interior fittings are concerned, in order that the construction may be examined and inspected to the best advantage.

Aside from the launches there is an interesting exhibit of the A-B-C life preservers which this firm manufacture. These are made of a light tropical wood, treated and coated by a special process. Each weighs 2½ pounds less than the usual cork belt, and occupy one-third less space. Since the wood blocks are impervious to water and moisture, they maintain their light weight instead of becoming heavier with use, and there is consequently much less tendency for the covers to mildew and rot. They are finished both in white duck and khaki covers, the latter looking especially small, neat and light for motor boat purposes.

A Watertight, Trouble-Proof Ignition Battery

It is only within the last few years that the motor boat owner has fully realized how many so-called engine troubles, coil botherations and other annoyances can be traced up to poorly working batteries—and then laid, not really against the batteries themselves, but to the improper surroundings in which the cells were expected to give satisfactory service.

It was no uncommon thing a short time ago for a skipper to spend money without stint on engine, reversing mechanism and coils; give careful and lengthy forethought to the layout of his exhaust line and water-cooling piping, and then throw his batteries loose in a locker, where the dampness from the bilge would ascend, or, sometimes, leaking from the deck above, drain down upon them. Every time the boat rolled the loose cells would strain at the wire connections and flop around like so many chestnuts on a hot stove lid. And then, when the batteries short circuited, through moisture, and connections became loose or the insulation rubbed off, Mr. Man would wonder what the matter was with the carburetor, or why they didn't build engines that would last the season through.



Combination outfit with which various changes of circuit may be instantly made.

Simplest type of Wireless Battery Holder. A strip which may be placed almost anywhere.

When, by means of an elimination test, he would finally discover that his troubles were electrical, the maker of the battery would come in for a lot of miscellaneous condemnation that wouldn't look nice in print. And all this with a fine disregard for the fact that a battery must be kept dry and be given a decent amount of protection.

Finally, the skippers became convinced that some means of protection from moisture and damage was due the dry cell, and thereupon the means to that end became many and varied. Some put the batteries in a wooden box, separating them by blocks of wood, as a precaution against short circuiting; others went a point further and stood the dry cells right up in a box, poured paraffine all around them, connected up the batteries, brought the terminals through the sides of the box, put on the cover and fastened it down watertight. This was a beautiful scheme and a big advance in battery protection. The drawback was that should some of the cells run down more quickly than others it was a decidedly awkward job to get at them for the purpose of removal.

This was the problem. To secure a battery box absolutely watertight and moisture proof, in which a cell would be hermetically sealed as long as desired, yet instantly removable, and at the same time safe from jar or any chance of breaking of connections. The problem has been solved by the Patterson Wireless Battery Holder, which will be exhibited in its various forms in space No. G.

The fundamental principle of the Patterson wireless dry battery system (as cut herewith shows) is a screw-top battery cell, which, without wires or binding posts, screws into one hard rubber plate, automatically making all connections. This hard rubber plate, as shown in cut, forms a solid, substantial, waterproof cover for the battery box, and as all contacts are moulded solid into this rubber plate, no possible loosening of connections, bad contacts, trouble from dampness, or anything of this sort is possible. The battery cells are *suspended* from the plate, and do not rest on any surface where dampness can collect.

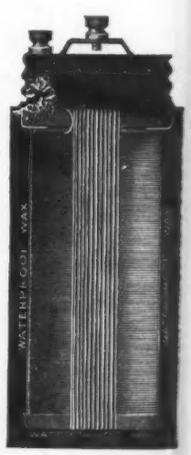
Renewing a set of batteries with the Patterson wireless dry battery system is as easy as putting in a half dozen incandescent lamps; and though done quickly it can't be done wrong by the most inexperienced person. Individual cells may be tested with ammeter without removing cells from holder. An automatic bridge in each cell receptacle permits the removal of one or more cells from the set without interrupting the sparking circuit, and also provides a quick test for a weak cell without ammeter.

The cabinets are *absolutely waterproof*, even though immersed in water; for over the entire inside surface of cabinets a heavy seamless layer of Neptune Semi-Rubber Compound is flowed, and between plate and cabinet is a heavy rubber gasket. Outfits have substantial leather carrying strap.

With this set, as here illustrated, as a basis, Stanley & Patterson have worked both ways—downward, to the more simple form for those to whom something even simpler seemed desirable; and upward, into more complex outfits for those who had individual ideas to be met, or where special conditions of service, or available storage space demanded something different. In all of the sets, however, no matter what the outward appearance or dimensions, these same absolute waterproof qualities are retained, with rigidity of connections and ease of removal of any individual cell.

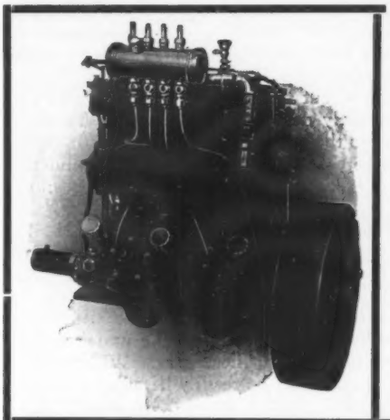
The model C-6 is a medium-priced outfit and probably the most popular type to-day. The cabinets are made of best grade clear oak, finished on the outside with three coats of spar varnish, while a heavy, seamless layer of Neptune rubber compound is flowed over the entire inside surface, making it absolutely water and damp proof.

A modification of the C box is shown in motor boat outfit L, in which the cells are arranged in a *single* row in a long, narrow box particularly adapted for stowing in narrow lockers. The C models are built in 6, 8, 12 and 16-cell capacities, as desired, and



Screw-Top Make and Break Coil for use in connection with Patterson wireless battery outfit.

SEE PALMER ENGINES AT THE SHOWS



NOTICE the accessibility of every part and ease with which it may be replaced when necessary.

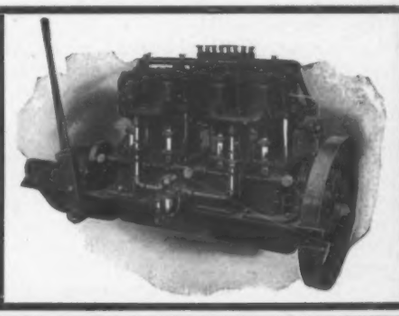
Parson's metal, the greatest of anti-friction metals, still improved by a pressure of 2,000 pounds to the square inch, is used in our 1909 connecting rods and bushings.

The success of Palmer 2 and 4-cycle engines is world-wide. 40,000 of them are in satisfactory use all over the world today.

15 years of engine building culminate in our latest models; it would pay you to send for our catalog now.

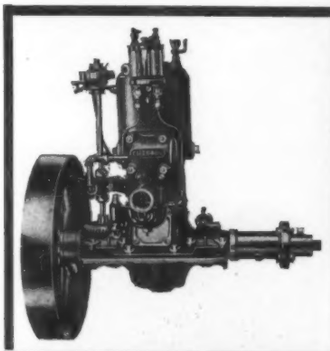
Let Us See You at the Shows.

LAUNCHES IN STOCK FROM 17 TO 30 FEET.



PALMER BROTHERS, **Factory: COS COB, CONN.**

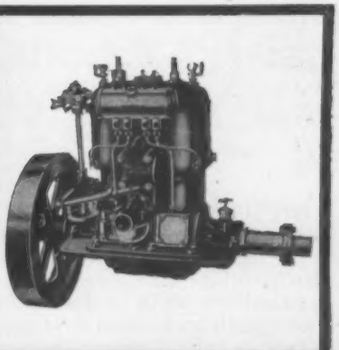
New York, 31 EAST 21st STREET
Philadelphia Office THE BOURSE
Seattle, Washington, 526 FIRST AVE. SOUTH
Providence, 242 EDDY STREET, ALEXANDRIA BAY, N. Y.
Portland, Me., 48 PORTLAND PIER
Boston Office, 85 UNION STREET
Vancouver, B. C., 1600 POWELL STREET



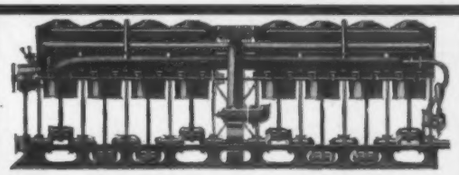
"THE MAN'S SIZE" ENGINE

LIGHTEST ENGINE IN THE WORLD FOR ITS POWER

10 H. P. $135 --- 20 H. P. $250

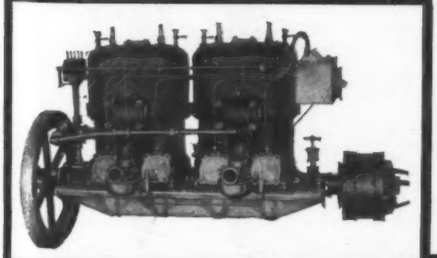


Emerson Engines are guaranteed for five years, the longest responsible marine engine guarantee.



8-cyl. 100 to 600 H.P. fast cruiser type motor, with steel open rod frame.

We challenge anyone to produce its equal in finish, workmanship and material at any price.

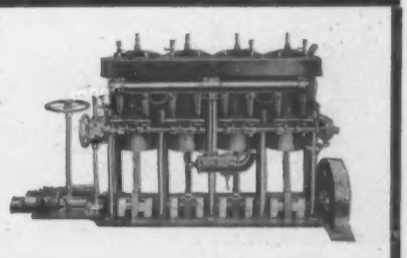


SIZES. We build two-cycle engines from one to six cylinders, 10 to 60 H.P., and four-cycle engines from one to eight cylinders, 12 to 600 H.P., which are installed in some of the finest boats afloat, and have won every contest wherever entered. We build a special racing engine, six cylinders, 120 H.P., weighing 350 pounds.

COST. The high quality of our equipment of special tools, with perfect design of engines, enables us to redrce the cost to a figure that has never been approached.

What the equipment is, our catalog tells; glad to send it,

The Emerson Engine Co., Alexandria, Va.



are connected in either series or in series-multiple, giving in the various types voltages of from 6 to 12, and initial amperage of from 20-25 to 60-75, so that if the engine be single or multiple-cylinder the correct ignition set for it may be obtained. The L types are built in 4, 6 and 8-cell sizes, with voltages of 6, 9, 12, respectively, and initial amperage of from 20-25 for the 4 and 6-cell outfits, to 40-50 on the 8-cell set when connected up in a single series of eight.

A development along the lines of greater flexibility and capacity brought about the combination Multiple and Series outfits, in which, by means of a circuit control switch, the widest range of circuits are possible, each having at certain times the utmost advantage for ignition work, viz.:

First. When the cells in plate are of about even amperage, the greatest mileage can be gotten by turning the switch till the indication dial reads "multiple-series." Second. Should, after long running, the amperage of one set be reduced to a point considerably *lower* than the other, it's most economical to *split the two sets* and run off the stronger half. To do this simply turn switch till dial reads either "left half" or "right half" (the one that's strongest). Third. After running on this half for some time it may be desirable to let this set recuperate and to run on half, showing less strength; to do this, just turn the switch till dial shows the desired connections. Fourth. The above describes three circuits, each advantageous under certain conditions. There remains only one more circuit, that for ignition would be sometimes desirable, and that is "all cells in straight series," which, when all batteries are badly run down, will oftentimes get one home without trouble. For this change of circuit turn the switch once more, till dial reads *"all series,"* and go ahead; of course, not forgetting when this last "set up" becomes a necessity to get a new lot of cells as soon as possible.

Another set of "Combination" outfits, arranged in series of four cells, gives an entirely different set of circuits than described above, though the *first* and most desirable (when sets are even in amperage) is *similar* to the first above noted, viz.: *"multiple-series."*

In these outfits the first turn of switch gives a combination of three sets of four cells in "multiple-series," 6 volts, 60-75 amperes. The *second* turn gives two sets of four cells in "multiple-series," 6 volts, 40-50 amperes (the center four cut out). The *third* turn gives two sets of four cells in "multiple-series," 6 volts, 40-50 amperes (the right four cut out). The *fourth* turn gives two sets of four cells in "multiple-series," 6 volts, 40-50 amperes (the left four cut out).

The following data table, showing current at terminals in the various "Combination" plate outfits, makes this plain:

Indicating Dial of Switch Shows Following Connections.	"Combination" 8-Plate Models. Battery Connected Up.	Initial. Volts.	Amp.
"Multiple"	2 sets of 4 cells in multiple-series	6	40–50
"Right half"	Right set of 4 cells in series working, left set 4 in reserve	6	20–25
"Left half"	Left set of 4 cells in series working, right set 4 in reserve	6	20–25
"Series"	8 cells in straight series	12	20–25

Indicating Dial of Switch Shows Following Connections.	"Combination" 12-Plate Models. Battery Connected Up.	Initial. Volts.	Amp.
"Multiple"	2 sets of 6 cells in "multiple-series"	9	40–50
"Right half"	Right set of 6 cells in series working, left set 6 in reserve	9	20–25
"Left half"	Left set of 6 cells in series working, right set 6 in reserve	9	20–25
"Series"	12 cells in straight series	18	20–25

Indicating Dial of Switch Shows Following Connections.	"Combination" 12-Plate Models in Series of 4. Battery Connected Up.	Initial. Volts.	Amp.
"Multiple-series 3-4's"	3 sets of 4 cells in multiple-series	6	60–75
"Left and right"	Left and right 4's working, center set of 4 cells cut out	6	40–50
"Left and center"	Left and center 4's working, right set of 4 cells cut out	6	40–50
"Center and right"	Center and right 4's working, left set of 4 cells cut out	6	40–50

If it is desired to control or change circuit, as above, from some point distant from battery box a distant-control panel is made.

The Patterson distant-control panels, in conjunction with "Combination" plate models of the Patterson wireless battery system, permit the engineer to change the "set-up" of his battery at will, *without moving from his seat.* These panels are made in three types, viz.:

Type S-1. Solid bronze waterproof case, with circuit control switch mechanism, gaskets, etc. Case is highly polished and lacquered. Type S-2. Solid bronze waterproof case, with circuit control switch mechanism, gaskets, etc., all mounted on polished hard rubber base, with addition of "on-and-off" switch. Type S-3. Solid bronze waterproof case, with circuit control switch mechanism, gaskets and "on-and-off" switch, all mounted on polished hard rubber base, with additional feature of fine, double-scale ammeter, normally in circuit on low scale, reading consumption of current by coil. High scale may be thrown in circuit by pressing plunger on right of rubber base, which action will cut out the consumption of coil reading and show in amperes the condition of battery in any of the four "set-ups" the "Combination" plate provides.

For use with make-and-break ignition system, the Patterson screw top spark coil is made to take the place of one of the battery cells, and when screwed into the battery holder plate it has the *additional protection of hard plate and rubber gasket,* as the coil displaces one of the batteries. Eight-cell holders are preferable for motor boat work, where the "make-and-break" form of ignition is used, for so much heavier spark is obtainable from eight-cell sets.

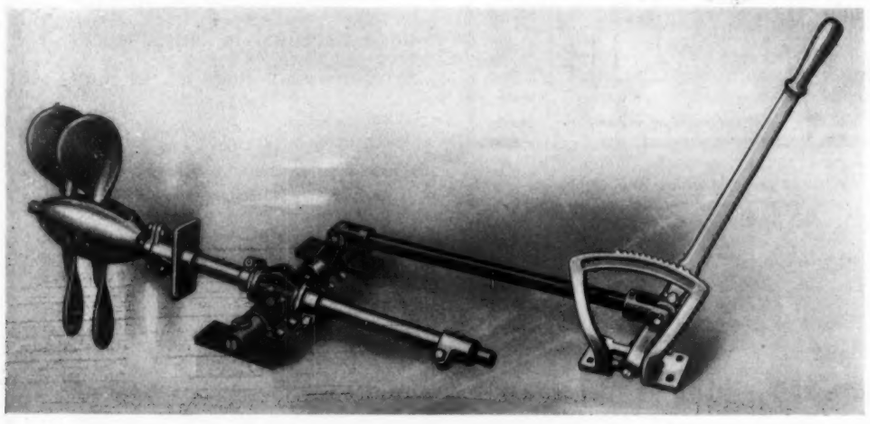
When coils are purchased at the same time as battery holder cabinet, hard rubber plates will, without additional charge, be equipped with a third binding post, so that coil may be cut into circuit independent of battery cells in cabinet. This is extremely desirable where a boat has more than one source of ignition power, so that the coil can be used with any of them. Coils all have thumb nuts, so that they may be used independently of wireless battery holders if desired. *Thumb nuts are to be removed* when coils are put into sockets of wireless holders.

The extreme of simplicity is found in the Strip Type Battery Holder, models A and B, which are often desirable for use on a motor boat in place of the Standard Battery Box, if there is no good space in the boat where the box may be conveniently placed. The Strip Type Holder may be screwed up against a side partition by using the hinged brackets furnished with each strip holder, or may be screwed up solid on the under surface of the partition, in which case brackets are not necessary. With the pair of hinged brackets the Strip Type Holder may be readily lifted up to permit the easy renewal of battery.

Strip Type Wireless Holders have automatic bridging device; they are made of hard rubber, and absolutely housed in a waterproof head-piece all-battery terminals. A hose may be played on the battery set after installation; yet the moment the stream of water ceases a test will show no trace of leak or ground to run down the batteries. No possible jar or vibration of the boat can loosen the connections between the cells, and, before long, this method of connecting up battery cells must supplant wiring up in the old way. The fact that all cells are suspended clear from any shelf prevents moisture.

A One-Lever Speed Control

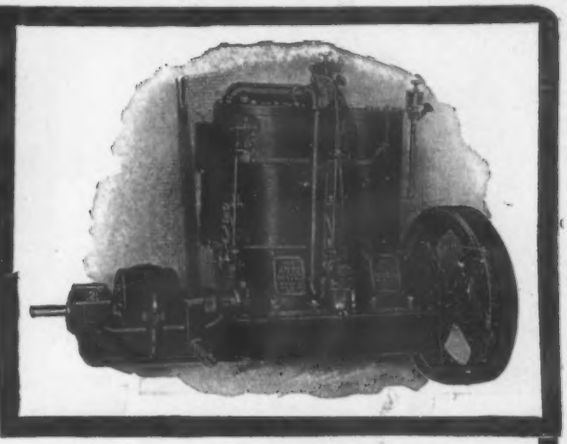
There will be shown by Messrs. C. F. Roper & Co., of Hopedale, Mass., the latest model of



1910 Model Roper Safety Propeller, with the new bow-control lever.

Detail of Roper Safety Speed-Controlling Propeller, showing how the two sets of blades keep a constant load on engine.

"The Automatic"
Specially Constructed For LONG DISTANCE CRUISING



"The Automatic" Engines run reliably at slow speed under the most adverse conditions through intricate channels or canals just as well as at their full-rated power.

"The Automatic" Engines run day and night, for months on end; one of them recently completed a trip of 8,000 miles with never a hitch.

And after this that same engine went right off again on her next voyage with less than a dollar's worth of repairs

If you are planning the power equipment for your next year's cruiser, if you contemplate long stretches off shore or away from gasolene specialists, it will pay you to write us that we may tell of what the Automatic has actually done in long-distance work.

"The Automatic" Engines are the Standard of Relability and Simplicity.

We are making a special price reduction on our 6, 12, 18 and 24 H. P. engines. Ask about it. One to six cylinder. 6 to 150 H. P

AUTOMATIC MACHINE COMPANY - - BRIDGEPORT, CONN.

Automatic Machine Co., 122 King Street, Seattle, Wash. Mr. H. H. Lewis, Manager.

Automatic Machine Co., 1811 Market St., Galveston, Tex. Mr. Jas. M. Parmelee.

P. P. Brueckbauer, Elkhart Lake, Wis.

Crescent Marine Motor Works, 116 Ferry St. St. Louis, Mo.

J. W. Enright Iron Works, 862 Tchoupitoulas St., New Orleans, La.

Henshaw, Bulkley & Co., 19-21 Fremont St., San Francisco, Cal.

King & Runyan, Pensacola, Fla.

Harrison M. Reed, So. Jacksonville, Fla.

Reierson Machinery Co., Portland, Ore.

Chas. W. Triggs, 60 N. Canal St., Chicago, Ill.

Florida Gas Engine & Supply Co., Tampa, Fla.

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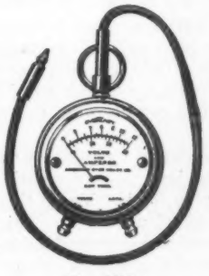
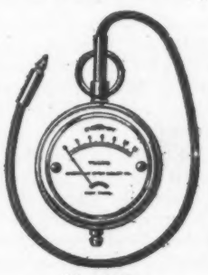
EVEREADY
POCKET METERS
SMALLEST—NEATEST—MOST ACCURATE

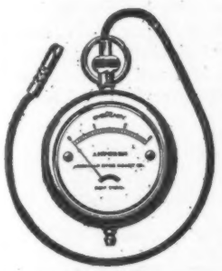
No. 1002 AMMETER



No. 1003 VOLT-AMMETER



No. 1005 VOLTMETER



No. 1007 COIL TESTING METER

No. 1008 AMMETER AND COILMETER

WORK PERFECTLY IN EITHER DIRECTION OF CURRENT

These meters are made on the only correct principle. Having the smallest number of working parts they are least liable to get out of order.

HAND CALIBRATED

The hand comes to an instant and positive stop without vibration, giving a quick reading and saving the battery.

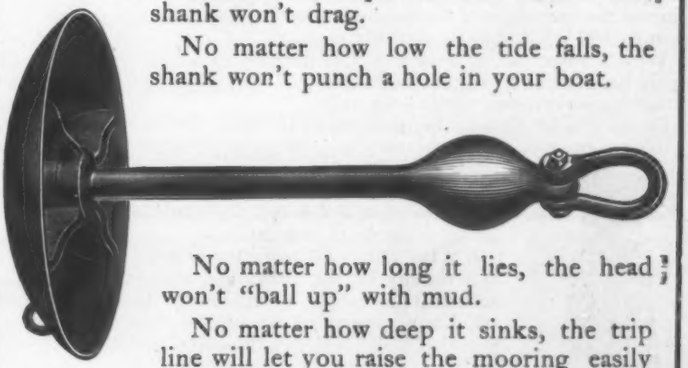
AMERICAN EVER READY CO.

NEW YORK CHICAGO BOSTON SAN FRANCISCO

Get a BULB SHANK ANCHOR
For Your 1910 Mooring
—and learn what real peace of mind means.

No matter how hard it blows, the bulb shank won't drag.

No matter how low the tide falls, the shank won't punch a hole in your boat.



No matter how long it lies, the head won't "ball up" with mud.

No matter how deep it sinks, the trip line will let you raise the mooring easily at the end of the season.

Send for handsome booklet explaining all these good points and telling what weight of mooring and size of chain you require.

FAIRHAVEN IRON FOUNDRY CO.
2 WATER STREET, FAIRHAVEN, MASS.

AGENTS

NEW YORK: C. D. DURKEE & Co., 2 and 3 South St.
BOSTON: A. S. MORSE CO., 210-212 Commercial St.
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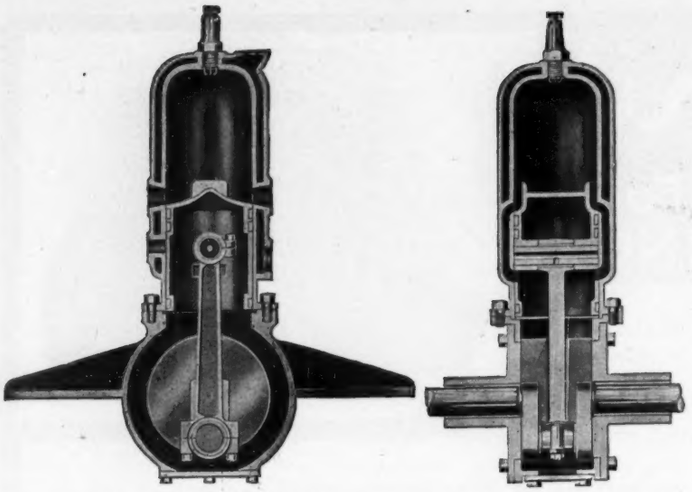

Two sectional views of the New Model Tuttle Special, showing position of inlet and exhaust ports.

the Roper safety propeller, in which, while retaining all the main features and working on the same mechanical principle as heretofore, several improvements along the lines of refinement have been been made for the coming year.

The Roper differs radically from every other reversing propeller, in that, instead of being either two or three-bladed it is four-bladed, with the blades set tandem in pairs. The principle on which it operates is that of the two sets of blades so offsetting each other when set in a neutral position, as regards speed, that the load on the engine is exactly the same as when the boat is going at full speed, either forward or astern.

It is the position of the surface of the blades in relation to the water that determines—as with every other reversible propeller—whether the boat goes ahead or astern and the speed at which she moves. It is the position of the blades, in regard to each other, that keeps the same load on the engine.

Yankee Muffler, which silences the exhaust.

The load being the same, no matter how fast or how slowly the boat goes, or even if the blades are set at a neutral position, there is no chance of the engine racing. This obviates all necessity of manipulating spark or throttle controls when the boat is slowed down or stopped, and allows a perfect control of speed and direction, either forward or astern, by the use of one lever.

Relieved from the necessity of manipulating the spark and throttle levers, and with no danger of the engine racing, it is possible with a Roper propeller to install the control lever at the bow, amidships, or any desired part of the boat, right at the hand of the steersman, making a perfect one-man control which may be instantly operated.

With a Roper safety propeller it is possible to set the engine at any speed desired, and let it stay at that speed, irrespective of the speed the boat is making, or whether she is lying still.

One of the illustrations herewith shows the new type of bow control, by which the lever may be placed forward at particularly advantageous positions in open boats. As will be noted, the mechanism is very simple and strong, possesses ample leverage, and is easily adjusted in regard to different methods of installation.

It is the claim of Messrs. Roper & Co. that the shape and rigidity of the blades and the material used is such that the wheel is particularly durable, and will stand any amount of reasonable usage, and a great deal that is distinctly unreasonable, without detriment.

Splitdorf Common Sense Spark Plug.

A Standard Exhibit At the Motor Boat Show in New York this year the Standard Motor Construction Company, of 172 Whiton Street, Jersey City, N. J., will have an enlarged exhibit over that of the previous years. They have found that the general public are very much interested in the type of Marblehead Ocean Racer and cruising boat in which the "Standard" motor has been so successful during the last year in the cruising motor boat races. They will exhibit an Elco "Standard" 40-foot Marblehead launch, equipped with one of their 16-20-horsepower engines, with all the very latest and most approved features embodied in this type of boat, and they state that this boat will be the ideal cruiser. They will also exhibit one each of their 8-10, 16-20, 25-30, 40-50 and 25-horsepower high speed, 60-horsepower high speed and 100-horsepower heavy, slow-speed type of engines, and also an auxiliary engine and electric light plant. One of the features of their space will be an exhibition of shields, etc., won by the "Standard" engines, together with enlarged photographs of the latest boats equipped therewith.

The Splitdorf Magneto.

A Silent Muffler and a Noisy Whistle Outfit The Yankee Company, of Utica, N. Y., who are the manufacturers of the "Yankee" Silent Muffler and Whistle outfits, will exhibit at the New York Motor Boat Show a full line of Yankee mufflers and outfits, showing the improvements for the coming season. The Yankee muffler is fast becoming popular amongst motor boat owners, because it is claimed to be the only muffler made that will take care of any two or four-cycle engine, of any description, without back pressure or noise. The muffler is made of galvanized iron, asbestos-lined, relined with galvanized iron, well riveted, and made up in a manner so that there are no parts to work loose or get out of order, and at the same time is light in weight.

The exhaust from engine enters one end of the muffler and continues to pass through, all the time working towards the rear end of the muffler.

The construction of the interior of the expansion chamber causes a vacuum, which draws the burnt gases from the engine. The muffler for marine use is of water-cooled pattern, so that the circulating water from the engine may be run through it if desired. The Yankee muffler is used exclusively by forty-eight manufacturers of marine engines and automobiles. There are over 120,000 Yankee mufflers in actual use, giving great satisfaction.

There will be an improvement in the automatic check valve of the Yankee whistle outfits, and a brass pop safety valve will be connected to the air tank, which will blow off at about 150 pounds pressure. With these improvements the Yankee whistle will be brought up to a high standard. These outfits pass all Government inspection and fill every requirement of the law.

Both Ends of the Ignition System One of the most interesting features of the Show will be C. F. Splitdorf's exhibit of magnetos, spark coils and plugs. Now that magneto ignition is becoming so universally used, the Splitdorf magneto will hold special interest for a great number of people who are interested in motor craft.

The system used in the Splitdorf magneto is the one having an armature with but one winding, and giving a current of comparatively low tension. The current is discharged through a transformer, having a low and high-tension winding something similar to a regular spark coil. This steps the current up to a voltage sufficiently high to enable it to jump the necessary gap between the points of a spark plug in the compression in the cylinder of the motor. The armature is mounted on two annular ball-bearings.

The Common Sense Plug made by this firm is claimed to be constructed in such a way as to obtain the longest insulating surface possible without increasing the size of the plug itself. To do this a mica bushing is formed on a taper, consisting of lateral windings of mica, composed of sheets the full length of the insulator. This mica bushing is inserted into a small bushing, or nut, and is forced to a solid formation by the central electrode. The mica bushing is so extended on the compression end, and beyond the end of the electrode and nut, as to create an insulating surface of 1 inch. Outside of this, and immediately surrounding the mica bushing and lining the wall of the large steel bushing of the plug itself, a porcelain insulator is used, which increases the insulating surface to 1¾ inches. In addition to this great length of surface, insulated parts are designed to break up the carbon deposit, and prevent it forming a continuous circuit over insulators.

A Yankee Signaling Outfit, which takes compression from engine cylinder.

B. R. Stoddard's "Fearless" equipped with one 8x30 in. tank, capacity 80 cubic feet and 6 lights

A. T. Witherell's "Lesbia" equipped with one 7x24 in. tank, capacity 50 cubic feet

These Yachts, and many others are equipped with

The Safety Storage System

THE ONLY PERFECT SYSTEM FOR YACHT LIGHTING AND COOKING

Adapted to any size craft, sail or power. Tank may be stored anywhere, when empty exchanged for one fully charged.

Permitted by National Board of Fire Underwriters and U. S. Steamboat Inspection Service.

Leo S. Herzig's "Gardenia" equipped with one 7x24 in. tank, capacity 50 cubic feet and 1 light

THE COMMERCIAL ACETYLENE COMPANY, 80 Broadway, New York City

Branches: CHICAGO, 830 Monadnock Block. ATLANTA, 402 Equitable Building. TORONTO, 6 King Street, West

NO WORKING PARTS

NO RESIDUE

NOTHING TO GET OUT OF ORDER

M. C. D. Borden's "Little Sovereign" equipped with a 12x36 in. tank, capacity 225 cubic feet and 21 lights

Tanks of convenient size to supply a whole season's lighting

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¶ Send to-day for this free book, and study up on the question of how to fit up your motor boat for next season with a complete electric lighting outfit at small expense. The most complete book of the kind ever printed. If you had trouble with oil lamps last season, you surely should read this book. Sit down and write for it to-day.

THE DAYTON ELECTRICAL MFG. CO.

Largest Manufacturers of Ignition Apparatus in the U. S.

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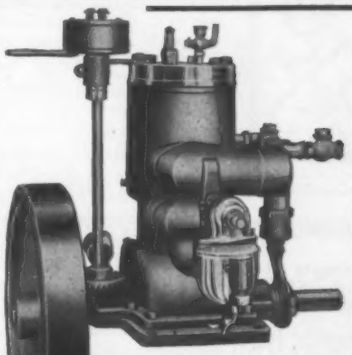

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MARINE GASOLINE ENGINES.

Smoothest running and most powerful engines for their weight that ever turned a propeller. The best $75 engine proposition on the market to-day. Complete with Schebler Carburetor, Crouse Hinds timer and silent muffler. Is built to run and "does" it. Superfluous weight is eliminated by careful designing resulting in a powerful machine. Will drive an ordinary 18 foot to 20 foot boat 8 to 10 miles an hour, according to design of boat. Equipped with a plunger pump, which can be run in either direction without clogging.

We make engines from ½ H.P. to 75 H.P. and they are all constructed in the same careful, thorough manner. There are 3,000 Wonder Gasoline Engines used in the United States. We say frankly that you ought to investigate the Wonder engine before deciding. Write for catalog giving all details and price lists. Prompt shipments.

The Wonder Mfg. Co., 259 Tallman St., Syracuse, N. Y.

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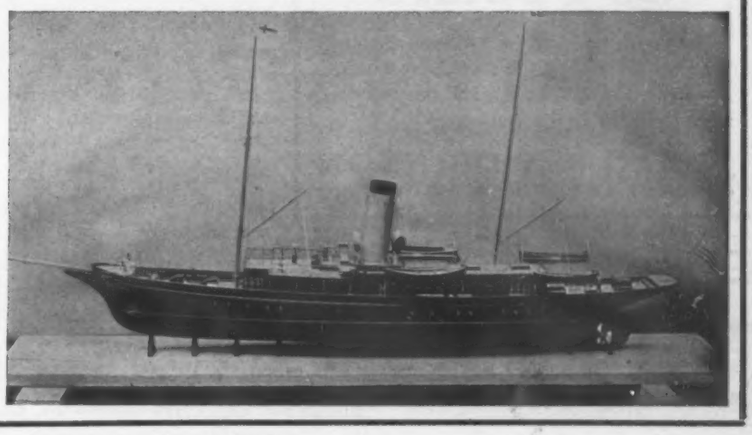
MARINE MODELS A SPECIALTY

INVENTIONS DEVELOPED

PATTERN MAKING

SPECIAL MACHINERY DESIGNED AND BUILT



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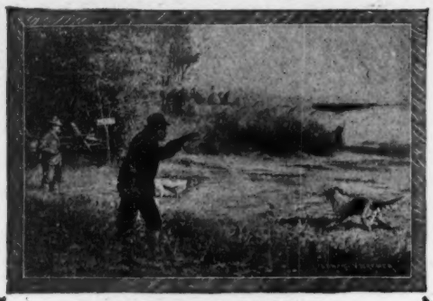

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(America's Magazine for Sportsmen)

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SAVE MONEY The Famous Michigan SAVE MONEY

Speed Propeller Wheels. Reverse Gears and Marine Hardware are used on some of the most up-to-date and fastest boats in the world.
Our prices are the lowest; our goods the best; satisfaction guaranteed; immense stock; prompt shipment; save money. Send for our 1910 free catalog today

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563 Canal Street
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Prest-O-Carbon Remover

Guaranteed to dissolve and remove all carbon from marine or auto engines, gal., $3.75; half-gal., $2.; quart, $1.

The Prest-O-Lite Co., Indianapolis, Ind.

Our Sails on the 30-Footers

The boats we fitted out last season, were the first to finish in the races. Next year will see our sails on a great many of the best boats in this country.

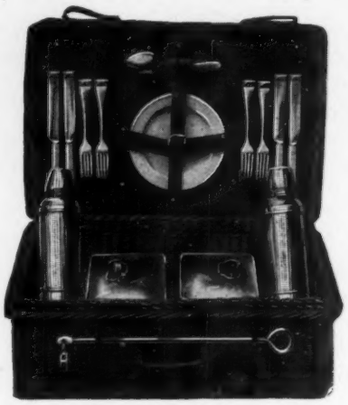
JONES & ROBINSON

CITY ISLAND NEW YORK CITY

Of Interest to the Skipper

New Thermos" Devices

The line of "Thermos" bottles, jars, pots and other receptacles for foods and liquids which has become indispensable to boat and motor car owners, and more recently to aviators the world over, will appeal even more strongly to the outing lover this year than ever before. To the man cruising upon land, over water or in the clouds, a steaming cup of coffee or chocolate, with hot chops and potatoes; or iced tea, a salad and frozen custard, is as easily attainable as at the St. Regis or the Waldorf, and with no further trouble or preparation than merely "taking off the lid." A new member of the Thermos family, but recently added, is the Thermos Humidor, which is quite sure to be appreciated, especially by boat owners. By its use the moisture, strength and aroma of cigars, cigarettes and pipe tobacco is fully preserved under any and all atmospheric conditions. Capt. Pritchard, commander of the steamship Lusitania, and commodore of the Cunard Line, is responsible for this latest addition to the list of Thermos receptacles.



Lunch Basket Fitted with Thermos Bottles.

Thermos Coffee Pot.

Stopping in at the Thermos Company's office one day, the old sailor declared it a hardship to all mariners that the Thermos Company had not provided a bottle that would preserve the qualities of tobacco as well as mint juleps and high balls.

"A man might just as well smoke a 'fiver' on the ocean," said he, "as a 50-cent cigar, for the salt air makes both taste alike. For the last year, however, I have preserved the quality of my cigars by keeping them in a Thermos bottle; and during that time I have enjoyed just as good a smoke on my vessel as I can get on land."

The value of the suggestion was not lost upon the Thermos Company, and within a few weeks' time the Thermos Humidor was placed upon the market.

From the "Golf" pint case, that may be carried at the end of a shoulder strap over the links or on the hunting field, to the elaborately-equipped china sets in wicker baskets and leather cases, and the mahogany "Thermos Cellarette," the Thermos line for 1910 seems to leave little room for improvement.

New Branch for Buffalos in New York

In keeping with their broad business belief that their responsibility as engine builders does not cease when they have sold an engine, the Buffalo Gasolene Motor Company, of Buffalo, N. Y., builders of the famous Buffalo engines, have changed their selling agency in New York City to a branch office, to give closer and better service to the hundreds of Buffalo users in the Metropolitan district. This will provide a more intimate and direct business relation between the maker and buyer.

The selling agency for the Metropolitan district has been taken out of the hands of the Motor Boat Supply Company, at No. 107 Liberty Street, and a Buffalo Gasolene Motor Company branch opened at 1035 Terminal Building, No. 30 Church Street, with Mr. W. S. MacLeod in charge as branch manager. Mr. MacLeod is an exceptionally proficient marine engine man. For three years he was the agent for Buffalos at Washington, D. C. His new territory as manager of the New York branch will include the State of Connecticut besides the Metropolitan district, which takes in Long Island, the Hudson River and the New Jersey coast. The Buffalo Gasolene Motor Company is now enabled to give its generous home-office service to all Buffalo users or buyers in this territory.

Points in Regard to Applying Marine Glue to Seams of Decks

Do not attempt to heat all the marine glue you expect to use at once. Heat only what is necessary for immediate use, and as soon as it is half used out of the kettle add fresh glue, keeping it stirred now and then. It should be used as soon as it is melted, and not allowed to stand in the kettle. Continued boiling hardens and injures the glue.

Almost without exception, unsatisfactory results in using this material are occasioned by faulty application, and are produced entirely by two causes: First, if either the oakum or cotton calking of the seam is damp when the glue is applied, or if there is any moisture in the seam, as soon as the sun shines on the deck the heat will turn this moisture into steam, which will force the glue up over the edge of the seam. Second, in paying the seam the ladle should be held at least an inch above the deck. If the ladle is drawn on or close to the seam a quantity of atmosphere will envelop, and has no time to escape before the glue becomes set. This will cause air bubbles, which in hot weather will also force the glue up over the edge of the seam, leaving

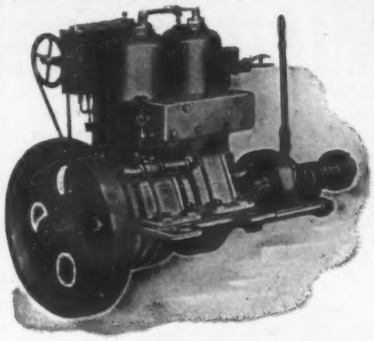
Thermos Humidor.

16-ft. Steel Launch $96

Complete with Engine, Ready to Run

18-20-23-27 foot Launches at proportionate prices. All launches tested and fitted with Detroit two cycle reversible engines with speed controlling lever—simplest engine made—starts without cranking—has only 3 moving parts—anyone can run it. Steel Rowboats $20.00. All boats fitted with air tight compartments—cannot sink, leak or rust—need no boathouse. We are the largest manufacturers of pleasure boats in the world and sole owners of the patents for the manufacture of rolled steel, lock seamed, concealed riveted steel boats. Orders filled the day they are received. Write for Free Illustrated Catalog and testimonials of 10,000 satisfied users.

Michigan Steel Boat Co., 1227 Jefferson Ave., Detroit, Mich., U. S. A. (30)



T & M MARINE MOTORS

"Those who buy T & M's are never regretful"

Cut illustrates 18 h.p. Special copper jackets, aluminum bases, etc. 300 pounds.

4 sizes in this type

The Engine that wins so many races.

Catalog and Treatise Free

We also have an Accessory Catalog.

Termaat & Monahan Co., Oshkosh, Wis.

Edson Steering Gears

have stood every test for half a century.

Established 1859.

EDSON MANUFACTURING CO.
260 Atlantic Ave., Boston, Mass.

REGAL Users Advertise REGAL Engines

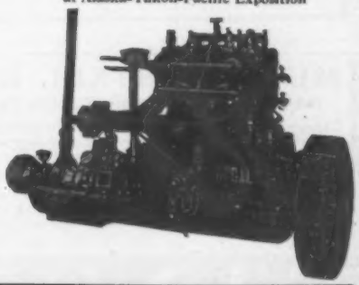
"THE four cylinder high speed engine I purchased of you last Spring is installed in a thirty-three foot boat and has given me the best of satisfaction. I have not had the least trouble with it during the year and have averaged fifty miles per day during the entire season. If you need any recommendations from this part of the country, let me know."—(*Signed*) C. R. Miller, Jersey Shore, Pa., Box 153.

REGAL MARINE ENGINES

show the very best mechanical skill, reliability, and economy in operation. In its construction, the number of working parts have been reduced to a minimum. Besides, in operation, it is absolutely perfect—starts or stops with perfect ease; increases speed while in motion. Made in High Speed, and Low Speed Heavy Duty. 1 to 4 Cylinders, 3 to 45 H. P. An absolute guarantee with every engine.

Awarded Gold Medal, highest award at Alaska-Yukon-Pacific Exposition

If you want to buy an engine don't fail to send for our Catalogue No. 6



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52 West Pearl Street

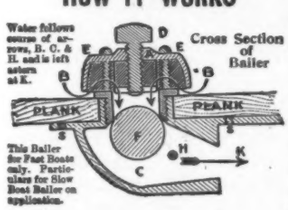
COLDWATER, MICH. U.S.A.

MAKES BOATS GO FAST

If you have a fast boat you can still **increase its speed** from ½ to 2 miles an hour, by getting rid of unnecessary weight of bilge water, with the *same power, same hull*, and no trouble, if you will equip with a

HITCHCOCK'S Automatic Bilge Bailer

HOW IT WORKS



It is **practical, indestructible, effective** and easy to apply, and besides increasing the speed of your boat, it will **keep it dry** and prevent accidents. Acts automatically when boat is under way, and is self-closing when boat slows down or stops. Requires no attention or power and is

Always on the Job

For sale by all dealers in Marine Hardware or direct from us, **Price $5.00.**

When writing for particulars, state speed of boat, also draft of hull.

The Automatic Bilge Bailer Co.

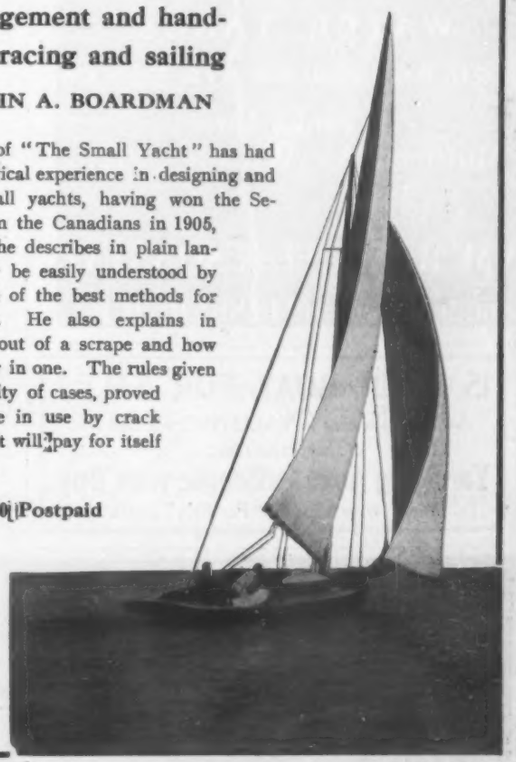
Dept. D, 150 Huntington Ave., BOSTON, MASS.

The SMALL YACHT

Its management and handling for racing and sailing

By EDWIN A. BOARDMAN

THE author of "The Small Yacht" has had much practical experience in designing and sailing small yachts, having won the Sewanhaka cup from the Canadians in 1905, and in this book he describes in plain language, which may be easily understood by the amateur, some of the best methods for tuning up a boat. He also explains in detail how to get out of a scrape and how to put a competitor in one. The rules given have, in the majority of cases, proved successful, and are in use by crack amateur sailors. It will pay for itself in your next race.



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MULLINS STEEL BOATS

FASTEST AND SAFEST BOATS BUILT

Strong—Safe—Seaworthy—Lighter—more Buoyant and Faster than wooden boats. Don't crack—leak—swell—dry out—wear out or sink. Write for Catalogue of Mullins Steel Launches, Motor Boats, Row Boats, Duck Boats, Hunting and Fishing Boats.

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HIGH PRESSURE AIR TANKS

Tanks for Mufflers, Air Whistles, Etc.

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An Advertisement in YACHTING will Sell her

BECAUSE

Yachting goes to People who Buy

Send for our Special "For Sale" Rates.

it hollow and unsound. The seams must be absolutely dry and clean before the glue is run into them.

If applied to old work the old material should be dug out perfectly clean. Whatever adheres to the sides of the seam should be removed with a case knife. Full directions for the proper use of this material will be furnished free of charge by L. W. Ferdinand & Co., 201 South Street, Boston, Mass., U. S. A.

The Supply of White Cedar Any shortage in the Eastern market of prime white cedar, which was talked of and even predicted by dealers last fall, is now considered unlikely. The old-established lumber house of William P. Youngs & Bros., at First Avenue and Thirty-fifth Street, Manhattan, who have recently been appointed exclusive handlers in New York and vicinity of the product of the John L. Roper Lumber Company, announce elsewhere in these pages an ample supply of white cedar, in all thicknesses and lengths, ready for shipment to any part of the country. They also have in stock hard oak and mahogany for interior finishing.

An Open Base, Non-Flooding, Accessible Engine The Powell Marine Engine, an open-base, two-port, two-cycle machine, is a radical departure from the conventional type of two-cycle engine. The open-base feature, while making instantly accessible connecting rod and crankshaft bearing, and allowing all play to be taken up easily without tearing the engine apart, has a still greater feature in its favor, for the builders of the Powell engine claim that, by the removal of the primary compression chamber from the engine base to the lower part of the cylinder itself, all chance of lowering of primary compression through leakage at crankshaft bearings is obviated, and that a clean scavenging of burnt gases is ensured and back firing into compression chamber obviated.

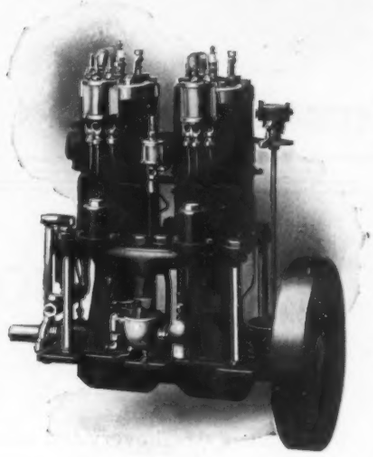
All parts are immediately accessible. The bearings are reversible, interchangeable and renewable. Both primary and secondary compressions are high, and there is no perceptible wear on the cylinder walls, the thrust being taken up by means of a steel cross-head, running in a removable and renewable cylindrical guide. Owing to the fact that the primary compression chamber is considerably higher than the float-feed chamber of the carburetor, there is no danger of flooding engine, even should the float of the carburetor stick.

The engine is perfectly balanced, with long connecting rods, runs smoothly, noiselessly and steadily; and, owing to its perfect scavenging, and consequent pure charge of gas at time of ignition, the Powell offers a very high power in comparison with its bore and stroke.

In the multiple-cylinder types the exhaust manifold is water-jacketed, and, in all types, lubrication of cylinders and bearings are performed by multiple-sight feed lubricators. Crank-pin bearings and crankshaft are protected from dust and dirt by means of guard plates or shields, easily removable, and giving instant access to these parts when desired.

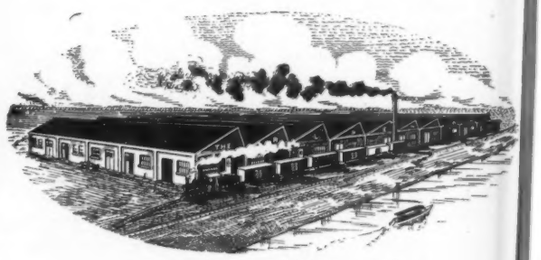
New Kenyon Plant The following cut gives a very inadequate idea of the new up-to-date plant of the R. L. Kenyon Company, located at Waukesha, Wis. This plant has been made necessary by the rapid growth of the business in Kenyon tops and Kenyon Life Preserver Cushions. These goods, which have been on the market about three years, are now recognized in every part of the world as the very highest grade produced.

This new plant at Waukesha, which is absolutely fireproof and of modern construction, contains over 25,000 feet of floor space, and is equipped with every modern appliance for handling their line of manufacturing.



Powell Open-Base Engine with oil guards in place.

In addition to the Kenyon line, as shown in 1909, they have added a line of cockpit covers and a combination sprayhood and cockpit cover, shipping covers and a full line of canvas work for the marine trade. In coming out with this line of canvas goods they have not the ordinary goods to offer, but every bit of this canvas work is done with the Heavy Duty Duck. This duck is treated and waterproofed in their own factory by a special process, which renders the duck absolutely waterproof and proof against rot or mildew. The duck does not shrink to any extent, contains no oil and never gets hard, retaining its flexibility in hot or cold weather alike.



Where the Kenyon Goods are made.

These goods are not for sale by the yard. They are the product of the Kenyon factory, and can be had only in Kenyon goods. This just goes a little further with the Kenyon policy of having the very best on the market at the lowest price. Although the price on materials has advanced, the price of Kenyon tops and life preserver cushions remains the same, the company taking care of the advance in materials for the benefit of their customers. Their 1910 catalogue will be mailed to any address on receipt of a 2-cent stamp to cover postage, and it shows their complete line, giving prices.

2 H. P. DETROIT ENGINE **$29.50** Engine only, without Electrical or Boat Equipment

Other sizes at proportionate prices in stock ready to ship. Single cylinder engines, 2 to 8 h. p.; double cylinders, 8 to 20 h. p.; four cylinders, 60 h. p. Engines start without cranking. No cams, no sprockets, only three moving parts. All engines counterbalanced. No vibration. Special fuel injector burns gasoline, kerosene, coal oil, alcohol, naphtha distillate. Plastic white bronze bearings (no cheap babbitt used).

Crankshaft drop forged steel. Bearing surfaces ground. Adjustable steel connecting rod. Waterproof ignition system. For your launch, sailboat, rowboat, sternwheel boat or railroad track car. 20,000 satisfied users. Free catalog and testimonials. Demonstrating Agents wanted in every boating community. Special wholesale price on first outfit sold. [38]

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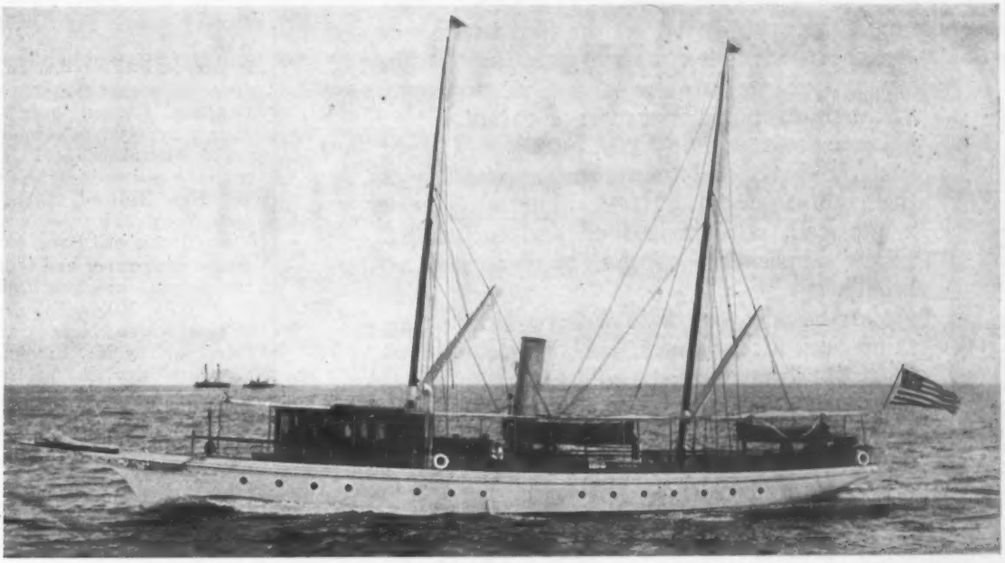
Don't PAINT Your Boat—ENAMEL it with

Enamolin



Capt. F. S. Terry, Master THERESA Gustav Sidenberg, Owner

READ THIS!

New York, Sept. 15, 1909.

Emil Calman & Co.,
100 William St., New York, N. Y.

Gentlemen:--I wish to tell you of my experience with the use of Enamolin on the Steam Yacht "Theresa." I had the "Theresa" painted last March with two coats of Enamolin, and at this date it has not been repainted, which is something very unusual for this yacht. As on account of docking six to eight times per day, we have always found it necessary to repaint at least once in two months, and sometimes as often as once a month. Enamolin has been a great surprise to me, as I did not know before that a paint could be made that would cover so well and dry so hard as what Enamolin has. The Theresa's sides today look as well as they did in the Spring when the paint was first applied and in the nine years that I have been in command of this yacht it is the first time she has ever run an entire season without repainting. The paint does not show any blistering or checking, and figuring out the cost it is far more economical than buying and mixing our own paint.

You have my free permission to use this letter in any way that you may care to, and I will answer any inquiries that may come to me on this subject.

Frank S. Terry
Master of Steam Yacht "Theresa".

ENAMOLIN is guaranteed to wear perfectly without repainting through at least one season. It is the finest finish for a fine yacht, as it will not blister, peel, check, crack or flake. ENAMOLIN may be applied over the old paint now on your boat. Send for descriptive booklet, containing price list, color cards, directions for use, etc.

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EMIL CALMAN & CO., Estab. 1850, 102 WILLIAM ST., NEW YORK

~~How to Build a Boat.~~
~~How to Sail a Boat.~~
How to Paint a Boat.

WE can't help you a bit on the first two questions, but when it comes to painting a boat, we believe we can be of service to every yachtsman, motor boat man or oarsman.

¶ Good boat painting is a question of right material first, and then right application of the right material. Right material is pure white lead, pure linseed oil and turpentine. Right application cannot be described so briefly.

¶ Our booklet "How to Paint a Boat" contains only a few pages, but every line helps to justify the pamphlet's title. It tells you exactly how to paint a boat. In this book we get down to specific details. The novice and the old-time boatman alike should have it. Free to every reader of "Yachting." Ask for Boat Painting Outfit No 50, which includes some other general paint literature, as well as the above pamphlet.

Our Pure White Lead ("Dutch Boy Painter" trade mark) is now packed in steel kegs, dark gun-metal finish, instead of in oak kegs as heretofore.

NATIONAL LEAD COMPANY

An office in each of the following cities:

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(John T. Lewis & Bros. Co., Philadelphia)
(National Lead and Oil Company, Pittsburgh)

THE CACO AIR WHISTLE

is the one that makes more noise, and uses less air than the others.

Ask Your Dealer for a Caco!

If he can't supply you, send for our Marine Catalogue No. 61. It contains the largest line of whistles and outfits made. Dept. 5

GLEASON-PETERS AIR PUMP CO.
255-261 Classon Ave., Brooklyn, N. Y.

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Recent Yacht Sales and Charters

The following sales have been made through the office of Stanley M. Seaman, 220 Broadway, New York:

Eighty-foot gasolene coast cruising yawl Zirvah, sold by Mr. John H. Cromwell, New York, to Mr. Geo. Smith, Philadelphia, Pa.; 75-foot schooner Mavis, sold by Mr. S. L. Folger to Mr. S. T. Hubbard, New York Cotton Exchange. New owner plans a long Eastern cruise this summer; 55-foot sea-going gasolene cruiser Valeda, sold by Mr. H. K. Milner, Georgia, to Mr. F. B. Richards, of Cleveland, Ohio; gasolene express cruiser Duchess, by Mr. L. M. Gilbreth, Plainfield, N. Y., to Mr. F. E. Lewis, 2d, Stamford, Conn.; sloop Polly, sold by Mr. T. S. Price, New York, to Mr. A. D. Mathews, Brooklyn; gasolene cruiser Dorryn, by Mr. Geo. F. Foote, Ithaca, N. Y., to Mr. James Golden, Norwalk, Conn.; auxiliary yawl Alga, sold by Mr. Alfred Wilson, Trenton, N. J., to Mr. F. F. Farrell, New Orleans, La.; 80-foot seagoing cruiser Trainga, sold by Mr. W. M. Lovering, Boston, to Mr. Bernard Zahn, New York City; 55-foot seagoing cruiser Nydia, sold by Mr. Bernhard Zahn to Mr. Geo. F. Foote; seagoing cruiser Picaroon, sold by Mr. T. B. Baylies, New Bedford, Mass., to Mr. E. D. Hunter, New York. Picaroon was winner of the New York-Marblehead Race, 1907. She has been fitted out by new owner and is now cruising in Southern waters; gasolene cruiser Go Sum, by Mr. Warren H. Miller, Bayway, N. J., to Mr. M. L. Felkin, Boston, Mass.; seagoing cruiser La Vedette, sold by Mr. Frank A. Egan to Mr. E. L. Woodard, Norfolk, Va.; auxiliary yawl Minnemah, sold by Mr. F. F. Carey, New York, to Mr. B. B. Bradley, Tarpon Springs, Fla.; fast raceabout Pretty Quick, sold by Mr. Frederick Gallatin, Stamford, Conn., to Mr. Herman Livingston, Catskill, N. Y.

One hundred-foot steam yacht Augusta has been chartered for Mr. John B. Herreshoff to Mr. Melville E. Stone, president Associated Press.

The same agency has sold one-sixty-fourth interest in the schooner Stanley M. Seaman for Messrs. Donnell & McKown, Boston, to Mrs. Isabelle Gwathm, New York City. This schooner was launched in December, 1908, and has returned her owners 14 per cent. earnings for the year.

The following vessels have been sold and chartered through the agency of Tams, Lemoine & Crane, New York:

Seventy-foot motor yacht Enjay II, sold for Mr. T. G. Bennett, of New Haven, to the E. I. Du Pont, De Nemours Powder Company, of Wilmington, Del.; the English steam yacht Greta, chartered for Mr. W. S. Bailey to Mr. Henry G. McVickar, who cruised in her in Mediterranean waters; the motor yacht Shadow, chartered for Dr. James C. Ayer to Dr. Francis Delafield. This charter was made in conjunction with Mr. Ernest E. Lorillard; the 220-foot English steam yacht Catania, chartered for a six months' cruise for the Duke of Sutherland to Colonel Robert M. Thompson. She is now in the Mediterranean. The 230-foot English steam yacht Maund, 900 tons, chartered to Cleveland Dodge for A. Mortimer Singer. Mr. Dodge will cruise in the North Sea.

The following sales have been made through the agency of John G. Alden, Boston, Mass.:

Twenty-one-foot keel knockabout Annawah, ex Nabob, for A. L. Babcock, of Boston, to Jos. F. Wheater, of Boston; the sonder boat Vim, for J. Brooks Nichols, of Lexington, Ky., to Wm. R. Sears, of Boston, who will use the boat at Cohasset next summer, although she will probably be seen in the racing at Marblehead; the 33-foot waterline sloop Lady Mary, for Demarest Lloyd to G. K. Simonds, of Fitchburg, Mass.; 30-footer Aida, for H. B. Whittier, of Boston, to a prominent Boston yachtsman; the 23-foot waterline

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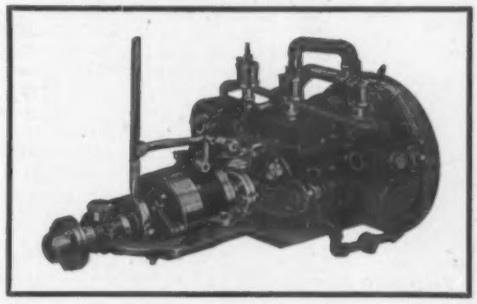

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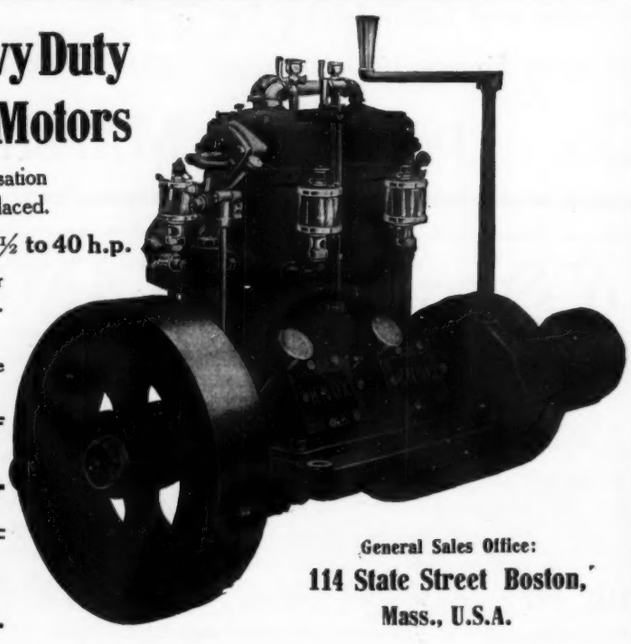

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centerboard cruising yawl Eleanor, for H. B. Knight, of Boston, to Irving Wright, of Boston.

Mr. Alden also reports the charter for the season of 1910 of the 55-foot waterline cruising schooner Beatrice, owned by J. C. Hamlen, of Portland, Me., to Dr. H. D. Lloyd, of Boston. Through the same agency, Commodore Alfred Douglass, of the Boston Yacht Club, has sold the 50-foot waterline schooner Shiyessa to Demarest Lloyd, of Boston, and John Phillips Reynolds, of Boston, has sold the 44-foot waterline keel cruising schooner Vision to Henry A. Morss, of the Corinthian and Eastern Yacht Clubs.

The Hollis Burgess Yacht Agency, of Boston, Mass., has sold the 28-foot waterline auxiliary yawl Idella, owned by Mr. Otis W. Amsden, of the Boston Yacht Club, to Mr. A. Homer Skinner, of Fall River, Mass.

Baltimore and Chesapeake Bay

(Continued from page 143.)

besides getting all the cups the Corinthians had to offer, won the free-for-all cup at the annual regatta of the Chesapeake Bay Yacht Club, held at Oxford in July. Already the yachtsmen are making plans for the coming season, although their anchorage in Stone House Cove is now locked in the embrace of winter and their wharf surrounded by boats laid up in storage.

Under the direction of Commodore George W. Golden and Secretary Wyatt W. Estep, the club has grown steadily during the past twelve months.

New York Motor Boat Club

At the regular meeting of the New York Motor Boat Club held in their club house, Hudson River at 147th Street, the annual election of officers for 1910 was held, resulting in the unanimous selection of the following: Commodore, Frank D. Gheen; vice-commodore, A. T. S. Clark; rear-commodore, E. E. Barney; treasurer, C. F. Chapman; secretary, C. H. Dougliss; member of the board of governors, Arthur Bradley, Jr. The club is growing rapidly, 99 new members having been enrolled during the past year. To properly take care of its booming condition the club recently secured a lease of an additional 100 feet of water front on the Hudson, adjoining its present grounds.

In racing events the club has been signally conspicuous, having handled a greater number of important events than any other single club during the past season. In July, the New York to Albany and return handicap race was so successfully held and proved so popular that it will undoubtedly take its place among the classic races of the sport along with the Bermuda, Marblehead and Block Island races.

Newark Motor and Yacht Club

At the annual meeting of the Newark Motor and Yacht Club held January 6, the following officers were elected: Commodore, De Witt C. Pell; vice-commodore, E. R. Albrecht; rear-commodore, Floyd Riley; financial secretary, T. F. Flanagan; recording secretary, A. K. Sparks; treasurer, Jos. P. Kroll; measurer, D. N. Osborn; steward, Jos. Brown; sergeant-at-arms, Geo. Byrns; trustees, T. Melins and H. H. Harrison. Regatta committee—R. O'Brien, W. A. Crawford and L. Hart. The smoker committee—E. R. Albrecht, Geo. Byrns, D. C. Bishop, D. C. Pell and Jos. P. Kroll.

The Wrong Manchester

In the January issue we published a photograph in The Month in Yachting which we labeled "Manchester I, the boat that brought the Seawanhaka Cup back from Canada." The boat in the cut was not Manchester I, but Manchester II, a sonder boat built in 1906. We regret the error.

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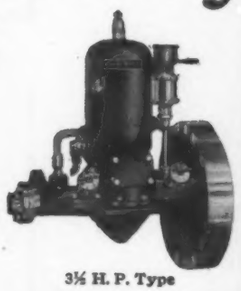
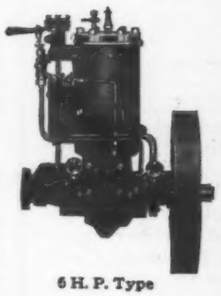


3½ H. P. Type



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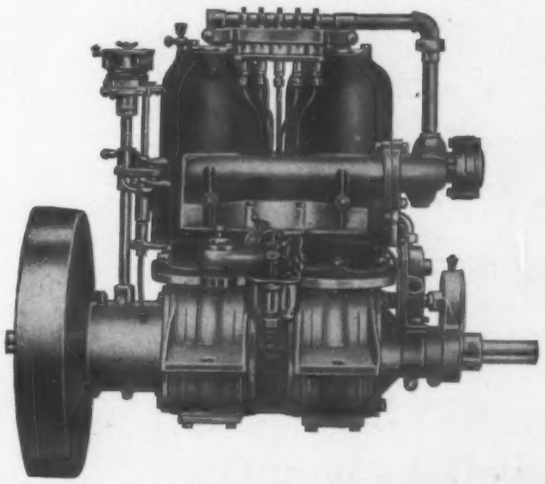

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The Oil-Burning S. Y. Companero

(Continued from page 130.)

work for the owners of this boat is far from being solely a question of money. The descendants of Phineas Banning here get what Phineas Banning got—the best, whether in work or allegiance.

Companero was built for the directors of the Santa Catalina Island Company and the Wilmington Transportation Company. These men have large ocean island estates to look after, which are widely separate, and as they have their own piers in every harbor of these south seas the Companero always lies moored to a wharf. For this reason she was given an ironwood guard rail and a plumb bow, which to a certain extent detract from her yacht-like appearance. But in preparing a sort of marine private car in which a good many other directors could be entertained, these owners certainly knew what was desirable in the way of design.

This vessel is part and parcel of the far-sighted plans of a man long since dead—a man whom the old-timers on this coast love to praise—and all the cut glass and china on board are beautifully enameled with the letters "P. B." Every yacht, steamship, tug or schooner that is now sent out, or ever will be sent out, by these companies will also carry the one houseflag with the letters "P. B." To a certain few this flag means more than the burgees of all the yacht clubs in the world. Wilmington Bay, on an island which still holds the Banning shipyards, has for many years been covered with vessels in all stages of decay. Sailing yachts, steam yachts, sailing ships and steamboats, barges, lighters and tugs are here laid away for honorable rest. In a roundabout way, I happen to know from outsiders that more has been offered for some of these structures than they were worth, but that the offers were always declined. And it is my opinion that no money can buy even the remains of a vessel that served Phineas Banning well. The old clan reverence shines out like a jewel in a country in which the paternal gods are few. And here, in the place of honor on the ship, at the head of the dining room, is the picture of Phineas Banning, taken when a young man before he was the partner of Ogden Mills. This is the "P. B." of the fine entertainments and great plans for local improvements. In order that his wide holdings might descend to his successors he sacrificed much, and among various companies who are to-day working out his prophetic plans there will be no wearing out for the flag with the name "P. B.," nor in the world of yachting can his name ever die, because he was the father of the sport on the Pacific Coast of America.

Henry J. Gielow.

(Continued from page 114.)

for the past six years, and, although a number of attempts have been made no better rules have been devised up to the present time.

One of the most notable vessels built from Mr. Gielow's designs is the brigantine Carnegie, completed last August. This vessel had to be built of non-magnetic materials, so that the use of iron and steel was prohibited, and all the fastenings, as well as "iron work" pertaining to the spars, rigging and blocks, had to be designed so that it could be made of bronzes and similar compositions. As the vessel had to be equipped with auxiliary power, a bronze engine and producer-gas plant had also to be designed; in fact, the designing of this vessel required the highest kind of engineering skill and experience.

Although Mr. Gielow is wrapped up in his professional work, still he has found time to keep up his scientific studies, and when his friends succeed in breaking through his natural reserve and modesty they are rewarded by interesting talks on the leading scientific questions of the day.

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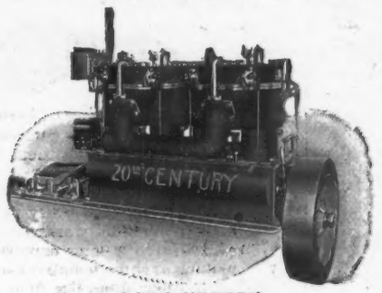

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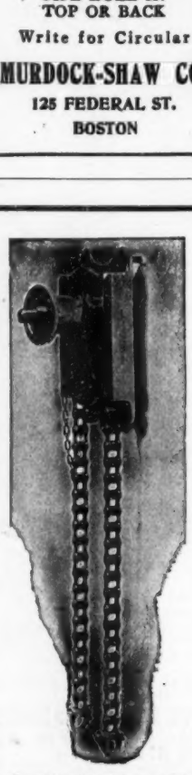

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Report of the Preliminary Committee to Formulate Rules for Restricted Power Boat Classes.

The committee appointed at New York, December 1, to devise rules for restricted power boat classes, reports the following recommendations:

Classes to be divided according to over-all length into sizes of 21 feet, 26 feet, 31 feet, 36 feet and 41 feet. Classes to have a minimum weight and a maximum piston displacement, but in each class, if a smaller piston displacement than the maximum is used, a deduction will be made from the required weight. Boats to be weighed with all propelling mechanism aboard, but without fuel, oil or crew. Piston displacement fixed for each class are for four-cycle motors.

Class A. Boats not exceeding 21 feet over-all length, but excluding rudder, if hung on the transom. Maximum piston displacement for a four-cycle motor, 250 cubic inches. Minimum weight for this piston displacement, under weighing conditions as outlined above, 2,000 pounds. The minimum piston displacement allowed shall be 160 cubic inches, and the minimum weight for this piston displacement 1,250 pounds. For each 12½ cubic inches of piston displacement below the allowed amount, the weight may be decreased by 100 pounds.

Class B. Boats not exceeding 26 feet over-all length, measured same as Class A. Maximum piston displacement for a four-cycle motor to be 375 cubic inches. Minimum weight allowed under this displacement, under weighing conditions as outlined above, to be 2,750 pounds. Minimum piston displacement to be 251 cubic inches and the minimum weight for this piston displacement 1,800 pounds. For each 13.8 cubic inches of piston displacement below the allowed amount, the weight may be decreased by 100 pounds.

Class C. Boats not exceeding 31 feet over-all length, measured same as Class A. Maximum piston displacement for a four-cycle motor to be 530 cubic inches. Minimum weight for this piston displacement, under weighing conditions outlined above, to be 3,600 pounds. Minimum piston displacement to be 376 cubic inches, and the minimum weight for this piston displacement 2,550 pounds. For each 14.7 of piston displacement below the allowed amount, the weight may be decreased by 100 pounds.

Class D. Boats not exceeding 36 feet over-all length, measured same as Class A. Maximum piston displacement for a four-cycle motor to be 700 cubic inches. Minimum weight for this piston displacement, under weighing conditions outlined above, to be 4,500 pounds. Minimum piston displacement to be 531 cubic inches, and the minimum weight for this piston displacement 3,310 pounds. For each 15.5 cubic inches of piston displacement below the allowed amount, the weight may be decreased by 100 pounds.

Class E. Boats not exceeding 41 feet over-all length, measured same as Class A. Maximum piston displacement for a four-cycle motor to be 900 cubic inches. Minimum weight allowed for this piston displacement, under measuring conditions outlined above, to be 5,400 pounds. Minimum piston displacement to be 701 cubic inches., and the minimum weight for this piston displacement 4,205 pounds. For each 16.7 cubic inches of piston displacement below the allowed amount, the weight may be decreased by 100 pounds.

In a boat equipped with a two-cycle motor of the present standard two-port or three-port type, not in combination, the maximum piston displacement shall not exceed 85 per cent. of that allowed for a four-cycle motor. In a boat equipped with a two-cycle motor using the two-port and three-port systems in combination, the maximum piston displacement shall not exceed 75 per cent. of that allowed for a four-cycle motor.

NAIAD. FIG. 206.

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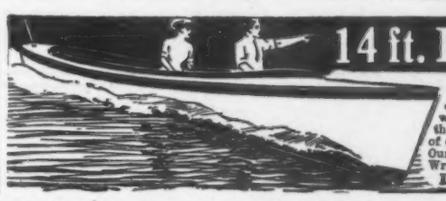

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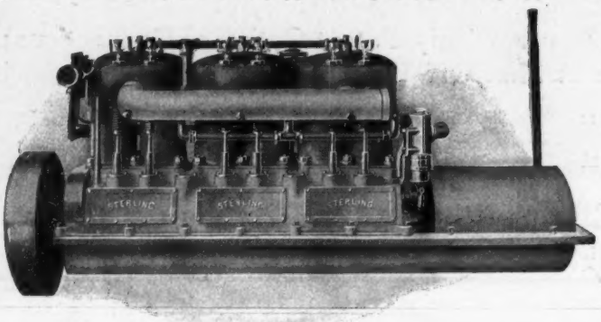

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